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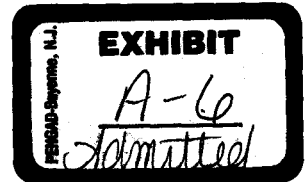
Transcript Exhibit(s)

WS-02987A-04-0288

AZ CORP COMMISSION
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RECEIVED



Richard L. Sallquist
Sallquist, Drummond & O'Connor, P.C.
4500 South Lakeshore Drive
Suite 339
Tempe, Arizona 85282
Phone: (480) 839-5202
Fax: (480) 345-0412

BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE APPLICATION
OF JOHNSON UTILITIES COMPANY FOR
AN EXTENSION OF ITS EXISTING
CERTIFICATE OF CONVENIENCE AND
NECESSITY FOR WATER AND
WASTEWATER SERVICE.

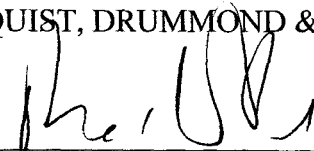
DOCKET NO. WS-02987A-04-0288

**NOTICE OF FILING
APPLICANT'S RESPONSIVE
TESTIMONY**

Johnson Utilities Company, by and through its undersigned counsel, hereby provides this
Notice of Filing on behalf of the Company of the Responsive Testimony of Brian Tompsett in
this proceeding.

RESPECTFULLY submitted this 25TH day of July 2005.

SALLQUIST, DRUMMOND & O'CONNOR, P.C.

By: 
Richard L. Sallquist
4500 South Lakeshore Drive, Suite 339
Tempe, Arizona 85282
Phone: (480) 839-5202
Fax: (480) 345-0412

1 Original and fifteen copies of the
2 foregoing filed this 28th day
3 of July 2005:

4 Docket Control
5 Arizona Corporation Commission
6 1200 West Washington
7 Phoenix, Arizona 85007

8 A copy of the foregoing
9 mailed/hand delivered this
10 25th day of June 2005, to:

11 Hearing Division
12 Arizona Corporation Commission
13 1200 West Washington
14 Phoenix, Arizona 85007

15 Utilities Division
16 Arizona Corporation Commission
17 1200 West Washington
18 Phoenix, Arizona 85007

19 Legal Division
20 Arizona Corporation Commission
21 1200 West Washington
22 Phoenix, Arizona 85007

23 Sheryl S. Sweeney
24 Ryley, Carlock & Applewhite, PA
25 One N. Central Ave., Ste 1200
26 Phoenix, Arizona 85004-4417

1
2
3 **JOHNSON UTILITIES COMPANY**
4 **CERTIFICATE OF CONVENIENCE AND NECESSITY APPLICATION**
5 **DOCKET NO. W-02987A-04-0288**
6

7
8 **RESPONSIVE TESTIMONY OF**
9 **BRIAN TOMPSETT**

10 **FILED JULY 25, 2005**
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~ .

1 **JOHNSON UTILITIES COMPANY**
2 **CERTIFICATE OF CONVENIENCE AND NECESSITY APPLICATION**
3 **DOCKET NO. W-02987A-04-0288**
4 **RESPONSIVE TESTIMONY OF**
5 **BRIAN TOMPSETT**
6 **FILED JULY 25, 2005**

7 Q. Please state your name and business address.

8 A. My name is Brian Tompsett. My business address is 5230 East Shea Blvd., Scottsdale
9 Arizona, 85254.

10 Q. By whom are you employed and what capacity?

11 A. I am the Executive Vice President of Johnson Utilities Company.

12 Q. You are the same Brian Tompsett that previously testified in this proceeding, are you not?

13 A. Yes, I am.

14 Q. What is the purpose of your filing this testimony?

15 A. We are filing this in response to the July 5, 2005 Procedural Order designed to clarify the
16 single remaining issue in this proceeding, the Company's water production capacity.

17 Q. Have you had an opportunity to review the Staff's Testimony in that regard?

18 A. Yes I have.

19 Q. Do you concur with the conclusions reached in that testimony?

20 A. Yes I do.

21 Q. The Staff Testimony cites certain additional information the Company provided to the
22 Staff in response to its concern. I refer you to Exhibit 1, and ask if that is a copy of that
23 additional information provided to the Staff?

1 A. Yes it is. This is our Response to the Staff Response to the June 21, 2005 Procedural
2 Order.

3 Q. Will you please explain that Exhibit?

4 A. Yes. The filing included several items. The first enclosure was my June 17, 2005
5 correspondence to the Arizona Department of Environmental Quality with the statistics regarding
6 the Morning Sun Farms well No. 1, including its pumping capacity as provided by our
7 hydrologist, Clear Creek Associates. This demonstrates the Company's ability to produce in
8 excess of 5,000 GPM. We also provided additional information to the Staff regarding the
9 average water consumption of our existing customers. The final attachment to that filing was the
10 June 3, 2005 Approval of Construction for the Morning Sun Farms Well No. 1.

11 Q. Was there other production capacity information subsequently provided to Staff?

12 A. Yes, we also provided similar information regarding two wells known as the Crestfield I
13 and Crestfield II wells. Each of the Crestfield wells is designed and anticipated to produce
14 approximately 1,000 gpm. Attached to this filing are two additional well applications as Exhibits
15 2 and 3. The wells are referred to as the Hardison Well No. 1 and the Ellsworth Well No. 1. Each
16 well has been designed to produce approximately 1,000 gpm. Both of these wells were submitted
17 to ADEQ on July 19, 2005, with a request for an Approval to Construct.

18 Q. Are those wells presently approved by ADEQ, or are they tied into the water distribution
19 system?

20 A. No, we anticipate obtaining the ADEQ approvals as quickly as possible and then
21 integrating those into the system as the demand increases.

22 Q. Does the data for the Morning Sun Farms Well support the Company's capacity to serve
23 not only its existing customers, but also the requested expansion area?

1 A. Yes it does. The addition of the two Crestfield Wells, the Hardison Well and the
2 Ellsworth well, all within the Phoenix AMA, will have a combined additional capacity of
3 approximately 4,000 GPM when integrated into the water system. The approved wells will then
4 provide sufficient water to serve and additional approximately 13,800 customers at the average
5 daily demand during the peak month residential customer usage. The anticipated production
6 capacity is far in excess of the demands in this area.

7 Q. I refer you to what is marked as Exhibit 4 to your Responsive Testimony, and ask if you
8 please explain that Exhibit?

9 A. These are the Arsenic Reports on the Company's wells, and include a summary sheet as
10 the first page.

11 Q. Are those wells within the new arsenic standard?

12 A. Yes, the wells that are connected to the system are substantially below the 10 ppb
13 standard.

14 Q.. Based on this evidence then, is it the Company's position that the Commission should
15 grant the Certificate of Convenience and Necessity as requested?

16 A. Yes it is.

17 Q. Does that include your Responsive Testimony?

18 A. Yes it does.

JOHNSON UTILITIES COMPANY L.L.C

5230 East Shea Boulevard * Scottsdale, Arizona 85254
PH: (480) 998-3300; FAX: (480) 483-7908

June 17, 2005

Kwame Agyare
Senior Environmental Engineer
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007

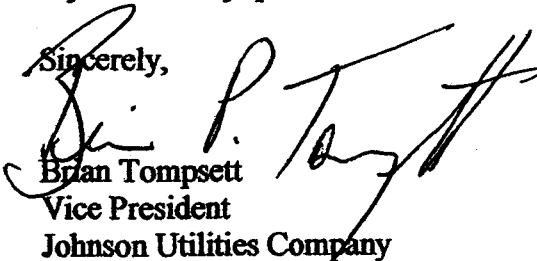
RE: Johnson Utilities Company – System #11-128

Dear Mr. Agyare:

Attached is the revised Johnson Utilities Company commitment list for System #11-128, effective 6/17/05. The Morning Sun Farms Well (ADWR # 55-201429) was tested at 1,100 gpm as documented by the attached pumping test report prepared by Clear Creek Associates, June 15, 2005. This increased capacity increases the total estimated well production from 4,732 gpm to 5,082 gpm.

If you have any questions or comments, please contact me at 480 998-3300.

Sincerely,



Brian Pompsett
Vice President
Johnson Utilities Company

EXHIBIT 1

Johnson Utilities Company - System #11-128

PRODUCTION OPTIONS WITHIN JOHNSON UTILITIES SERVICE AREA

Note: LOW NITRATES HAVE BEEN ASSUMED FOR ALL PRODUCTION WELLS EXCEPT FOR WELL #4.

PRODUCTION OPTIONS WITHIN JOHNSON UTILITIES SERVICE AREA						
Note: LOW NITRATES HAVE BEEN ASSUMED FOR ALL PRODUCTION WELLS EXCEPT FOR WELL #4.						
Well Identification Name System # 11-128	Well Identification Number	LOCATED WITHIN THE AREA OF:	ADEQ FILE NUMBER	ESTIMATED TOTAL FLOW PER WELL Including R.O. loss (gal/min)	Option #1 Well #4 "Untreated"	Option #2 Well #4+#5 "blended & treated" Plus Others
ESTIMATED PRODUCTION CAPABILITY PER WELL IN: (gal/day)						
Production:						
J.R. Well No. 4 (untreated)	55-558445	Johnson	980006	500	720,000	0
J.R. Well No. 4 (Treated with R.O. Unit)	55-558445	Johnson	980006	0	0	0
J.R. Well #4 plus #5 (blended)	55-559843	Johnson	980006	1000	0	0
J.R. Well #4 plus #5 (blended & treated)	Misc.	Johnson	980006	917	0	1,320,480
Edwards Road Well No. 2 (untreated) (1)	55-586189	Johnson	2001037	35	50,400	50,400
Oasis Well No. 1 (untreated)(2)	55-582085	Oasis	20010611	110	158,400	158,400
Oasis Well No. 3 (untreated)(2)	55-582087	Oasis	20010611	110	158,400	158,400
Oasis Well No. 2 (untreated)(2)	55-582088	Oasis	20010811	110	158,400	158,400
Skyline (untreated) (3)	55-621462	Skyline	20020539	1000	1,440,000	1,440,000
Circle Cross Well #1 (untreated)	55-599026	Circle Cross	20020489	1000	1,440,000	1,440,000
Morning Sun Farms (4)	55-201429	Morning Sun	20050258	1100	1,584,000	1,584,000
San Tan Heights #2 (5)	55-598836	San Tan Hts.	20050161	700	1,008,000	1,008,000
TOTAL ESTIMATED WELL PRODUCTION (GPD)				6,717,600	7,318,080	
TOTAL ESTIMATED WELL PRODUCTION (GPM)				4,665	5,082	

Storage:	Storage Capacity (Gallons)	Units served @ 260 Gal/unit/day
Johnson Ranch Water Plant No. 1	500,000	
Johnson Ranch Water Plant No. 1	100,000	
Oasis Water Plant No. 1	500,000	
Edwards Road Water Plant No. 2	50,000	
Circle Cross Water Plant No. 1	500,000	
San Tan Water Plant No. 1	1,000,000	
Production from J.R. Well #4 plus #5 (blended)	1,320,480	
TOTAL ESTIMATED STORAGE CAPACITY (Gallons)		3,970,480
LESS FIRE STORAGE CAPACITY AS REQUIRED BY FIRE DISTRICT (Gallons)		-120,000
WELL PRODUCTION WITHOUT CIRCLE CROSS OPERATING (Gallons/day)		6,310,080
ESTIMATED 1 DAY SYSTEM PRODUCTION and STORAGE CAPACITY (Gallons)		10,160,560
Units served @ 260 Gal/unit/day		39,079

(*) Pending indicates that the improvement plans have been submitted to ADEQ.

(1) Indicates actual maximum flow data

(2) Indicates actual maximum flow & permitted data

(3) Indicates actual & permitted data

(4) ADEQ approval of construction issued June 3, 2005.

(5) ADEQ approval of construction issued April 18, 2005.

June 15, 2005
Mr. Gary Larsen – Operations Manager
Johnson Utilities
968 East Hunt Highway, P.O. Box 87
Queen Creek, Arizona 85242

Re: Pumping Test Results: Morning Sun Farms Well (ADWR Registration No. 55-201429)

Dear Mr. Larsen:

This letter report summarizes the results of a 4-hour constant rate test conducted on June 9, 2005 on Johnson Utilities Morning Sun Farms well. The Morning Sun Farms well is registered under ADWR Registration No. 55-201429, and is a replacement well for ADWR Well Number 55-507141, which was abandoned. The letter report has been prepared as one of the requirements outlined in the Arizona Department of Environmental Quality (ADEQ) Engineering Bulletin no. 10 Guidelines for the Construction of Water Systems (ADEQ May, 1978). Engineering Bulletin no. 10 states, "*Individual wells shall be test pumped at a constant pumping rate that is not less than that planned for the final pump installation. The well shall be pumped at this rate for not less than four hours, and at least until a sustained yield is obtained with a static drawdown. Measurements of the water level recovery can then be made (page 2-9).*"

The subject well is located in Township 3 South, Range 7 East, in the northwest $\frac{1}{4}$ of the northwest $\frac{1}{4}$ of the northeast $\frac{1}{4}$ of Section 12 (D-03-07 12ABB) in Pinal County. Well construction was completed on May 12, 2004 by Preston Well Drilling of Mesa, Arizona. The well was constructed with 12 $\frac{1}{4}$ -inch (O.D.) steel casing from 0 to 700 feet. The subject well is screened from 560 to 660 feet below land surface (bls). A 4-hour constant rate aquifer test was conducted on the Morning Sun Farms well on June 9, 2005 to facilitate a determination of the local aquifer characteristics. Hydrogeologic conditions such as localized aquifer boundaries that may affect the well's capacity after extended pumping intervals can also be detected from this data. After pumping the well for 4-hours at a constant rate of approximately 1,100 gallons per minute (gpm) the water levels were monitored for 30-minutes until the water level in the well reached 95 percent recovery, relative to the static water level prior to the start of the constant rate test. The well had been previously equipped with an electric submersible pump by Preston Well Drilling. The flow rate was monitored by an in-line flow meter (analog) and discharge water was directed to a nearby retention basin.

The static water level in the Morning Sun Farms well was measured at 325.44 feet bls from the top of casing just prior to starting the pump on June 9, 2005. Water level data were collected manually by use of

an electric well sounder. Upon starting the pump, water levels were initially measured at one minute intervals. The time duration between water level measurements was gradually extended to once every 15 minutes by the end of the constant rate test. The discharge rate was held constant at approximately 1,100 gallons per minute (gpm) for the duration of the test, the pump was turned off and recovery was monitored for 30 minutes. The time duration between water level measurements during recovery was initially measured at one minute intervals and then extended to 5 minute intervals. The water level datasheet for the aquifer test is presented in Table 1.

The Cooper-Jacob Plot of drawdown data collected from the Morning Sun Farms well during the constant rate aquifer test is presented in Figure 1. The maximum recorded drawdown at the end of the constant rate test was 32.18 feet, equivalent to a pumping water level of 347.62 feet bls. The pumping rate at the end of the constant rate test was approximately 1,100 gpm; this equates to a specific capacity of approximately 49.6 gpm/ft. The Cooper-Jacob plot (Figure 1) illustrates water level drawdown relative to pumping time. The Theis Recovery Plot of residual drawdown data for the Morning Sun Farms well illustrating the water level recovery is presented in Figure 2.

Based on the constant rate test data for the Morning Sun Farms well, the Cooper-Jacob Plot (Figure 1) indicates that the transmissivity is about 372,300 gallons per day per foot (gpd/ft), and the corresponding Theis Recovery Plot (Figure 2) indicates a transmissivity of approximately 937,000 gpd/ft. Based on assumed equivalent water production across the entire screened interval of 100 feet (560 ft. – 660 ft.), the effective hydraulic conductivity (K) of the aquifer surrounding the Morning Sun Farms well is approximately 3,723 gallons per day per square foot (gpd/ft²) or 497 feet per day (ft/d) based on the Cooper-Jacob Plot. The Theis Recovery Plot indicates an effective K of approximately 9,370 gpd/ft² or approximately 1,250 ft/d.

Sincerely,

CLEAR CREEK ASSOCIATES, PLC



Steven W. Corell, R.G.

cc: Brian Tompsett, Johnson Utilities
Greg Brown, Specific Engineering

Attachments



Table 1
Aquifer Test Data

Johnson Utilities Morning Sun Farms Well
Location: D(03-07)12abb
ADWR Registration No.: 55-201429
Date of Test: June 9, 2005
Screen: 560 to 660 ft.
Pump Setting: Unknown
Casing Diameter: 12 3/4-inch

Constants		Correction	2.40	MP=	Top of Casing		
		Recovery		SWL=	325.44		
Time of Measurement	Time Since Pump Started (t min)	Time (t min)	W	Sounder Reading (feet)	Water Level (feet)	Drawdown (feet)	Discharge (gpm)
							Spec Cap (gpm/ft)
6:30	0			327.84	325.44	0.00	
6:31	1						
6:32	2			348.25	346.85	20.41	1100
6:33	3			348.50	346.10	20.66	1100
6:34	4			348.60	346.20	20.76	1100
6:35	5			348.69	346.29	20.85	1100
6:36	6			348.76	346.36	20.92	1100
6:37	7			348.81	346.41	20.97	1100
6:38	8			348.88	346.48	21.04	1100
6:39	9			348.90	346.50	21.06	1100
6:40	10			348.94	346.54	21.10	1100
6:42	12			349.10	346.70	21.26	1100
6:44	14			349.15	346.75	21.31	1100
6:46	16			349.17	346.77	21.33	1100
6:48	18			349.20	346.80	21.36	1100
6:50	20			349.21	346.81	21.37	1100
6:55	25			349.31	346.91	21.47	1100
7:00	30			349.38	346.98	21.54	1100
7:10	40			349.46	347.06	21.62	1100
7:20	50			349.55	347.15	21.71	1100
7:30	60			349.64	347.24	21.80	1100
7:45	75			349.66	347.26	21.82	1100
8:00	90			349.68	347.28	21.84	1100
8:15	105			349.76	347.36	21.92	1100
8:30	120			349.84	347.44	22.00	1100
8:45	135			349.87	347.47	22.03	1100
9:00	150			349.97	347.57	22.13	1100
9:15	165			350.00	347.60	22.16	1100
9:30	180			350.03	347.63	22.19	1100
9:45	195			350.02	347.62	22.18	1100
10:00	210			350.02	347.62	22.18	1100
10:15	225			350.04	347.64	22.20	1100
10:30	240			350.02	347.62	22.18	1100
10:31	241	1	241.00	328.60	328.20	0.78	
10:32	242	2	121.00	328.46	328.06	0.62	
10:33	243	3	81.00	328.38	325.98	0.54	
10:34	244	4	61.00	328.34	325.94	0.50	
10:35	245	5	49.00	328.31	325.91	0.47	
10:36	246	6	41.00	328.29	325.89	0.45	
10:37	247	7	35.29	328.27	325.87	0.43	
10:38	248	8	31.00	328.24	325.84	0.40	
10:39	249	9	27.67	328.23	325.83	0.39	
10:40	250	10	25.00	328.22	325.82	0.38	
10:42	252	12	21.00	328.20	325.80	0.36	
10:44	254	14	18.14	328.18	325.78	0.34	
10:46	256	16	16.00	328.16	325.76	0.32	
10:48	258	18	14.33	328.14	325.74	0.30	
10:50	260	20	13.00	328.13	325.73	0.29	
10:55	265	25	10.60	328.11	325.71	0.27	
11:00	270	30	9.00	328.09	325.69	0.25	

CLEAR
CREEK
ASSOCIATES

FIGURE 1

Cooper-Jacob Plot Constant Rate Test
 Morning Sun Farms Well (55-201429)
 Location: D(03-07)12ABB Date: June 9, 2005

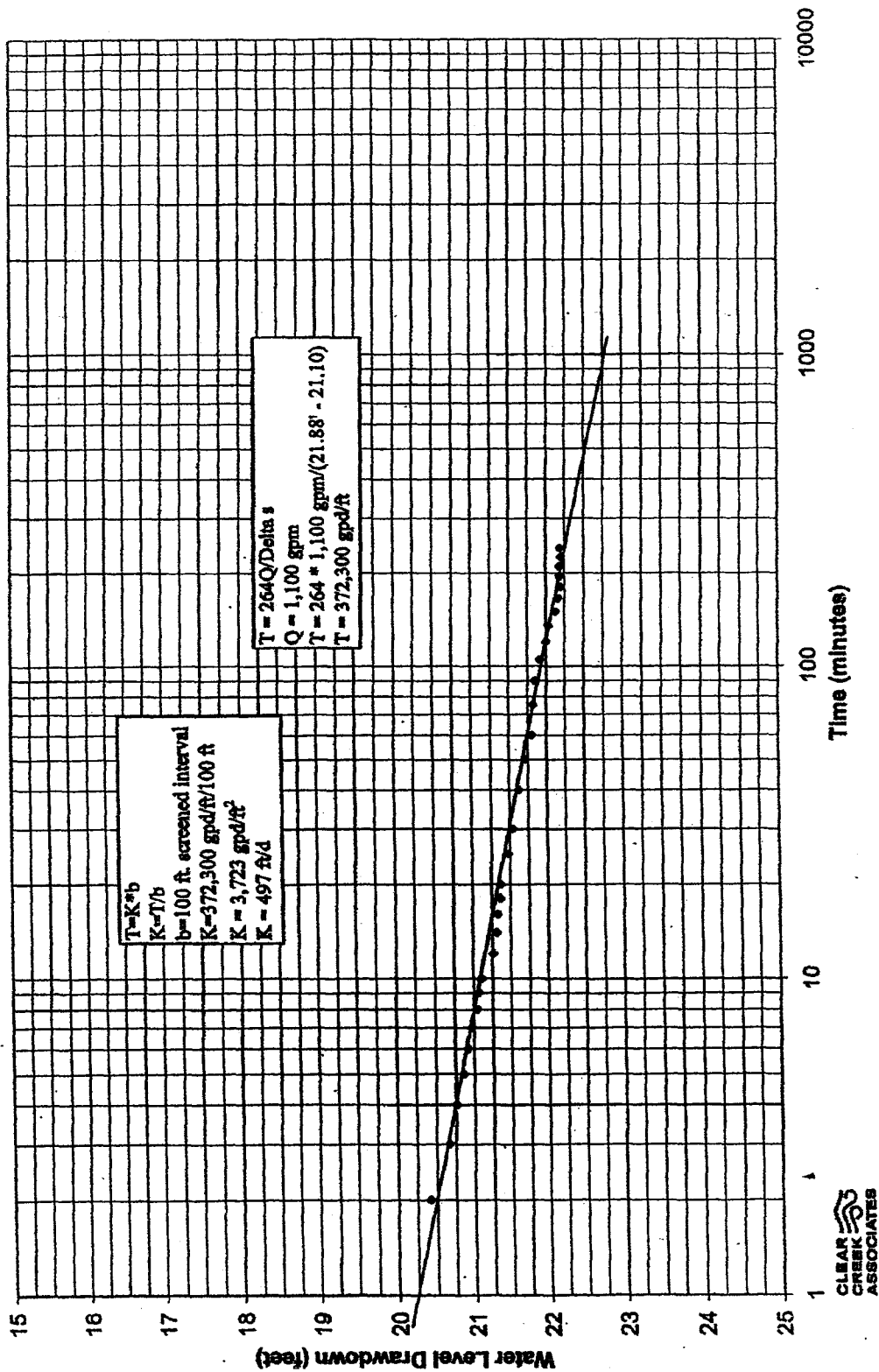
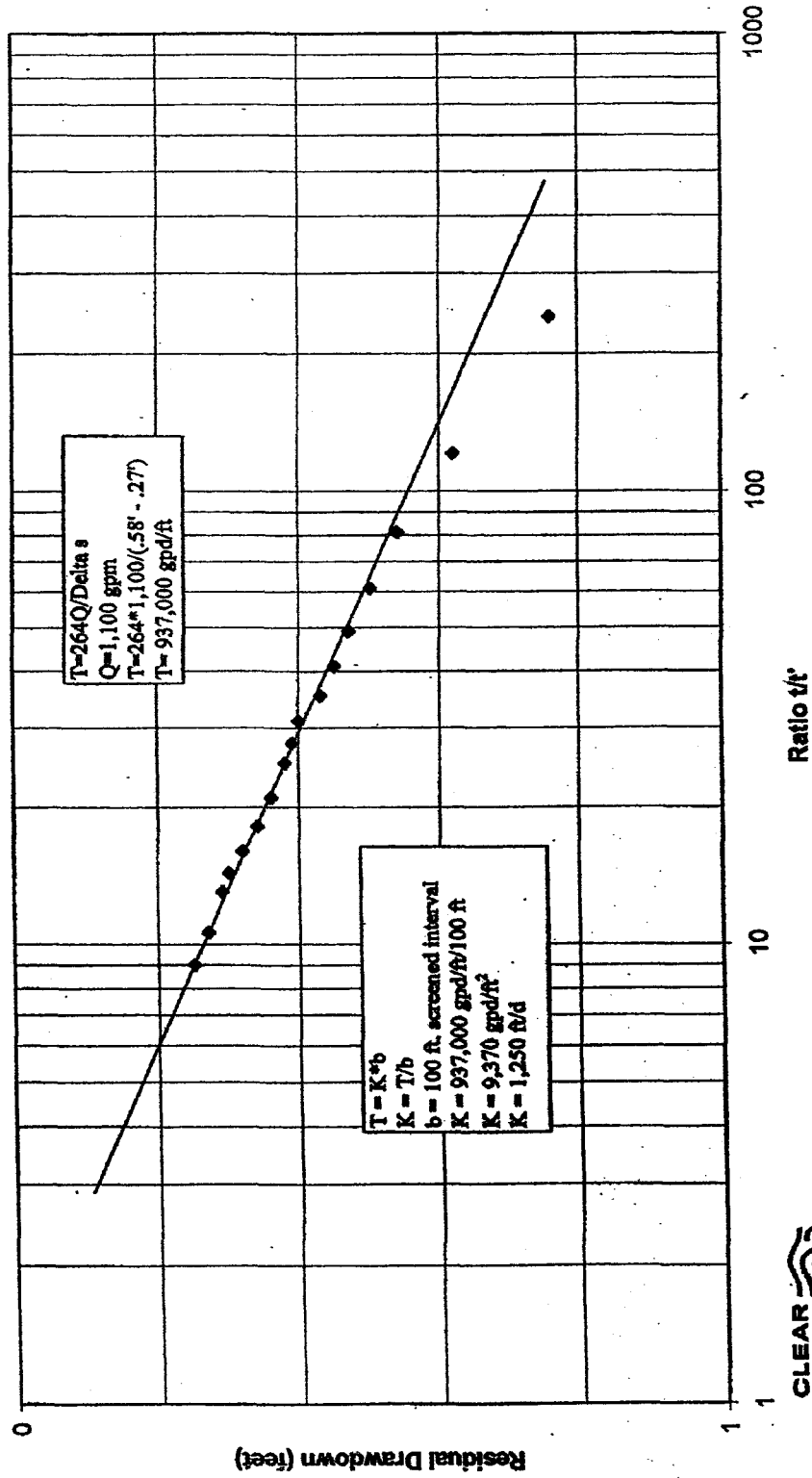


FIGURE 2
Theis Recovery Plot
Johnson Utilities Morning Sun Farms Well
Location: D(03-07)12ABB (55-201429)
Date: June 9, 2005



JOHNSON UTILITIES COMPANY

5230 E. Shea Blvd., Suite 200
Scottsdale, AZ 85254
(480) 998-3300, Fax (480) 483-7908

To: Kwame Agyare

ADEQ

Date: June 17, 2005

Job No.:

Drawing/Spec Reference:

Re: Johnson Utilities Company commitment list for System #11-128, 6/17/05

We Transmit:

☐ Herewith

☐ Under Separate Cover

☐ Via

Material Format

Requested Action

☒ Letter

☐ Memo

Prints

☐ Sketch

☐ Reports

☐ Mylars

☐ Shop Drawings

☐ Clarification Drawing

☐ Modification Drawing

☐ Specifications

☐ Sepias

☐

☐ For Your Approval

☐ For Your Signature
Information

☐ Resubmit

As Requested

☐ Issue Change Order

☐ Your Review

☐ Please Comment

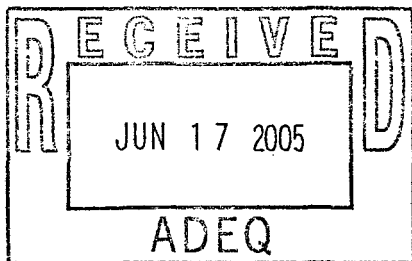
☐ Make Recommendation

☐ Issue Construction Order

☐ For Your Use

☐

Remarks:



Copies To:

Signed:

Brian Tompsett

Operation Manager

Date:

Received By:

[Signature]



Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • azdeq.gov

APR 22 2005



Stephen A. Owens
Director

APPROVAL OF CONSTRUCTION

Page 1 of 2

Project Description: Construction of new San Tan Well site with DWR #55-598836 along Hunt Highway.

Location: Pinal

Project Owner: Johnson Utilities

Address: 5230 East Shea Blvd., Ste., 200
Scottsdale, AZ 85254

The Arizona Department of Environmental Quality (ADEQ) hereby issues an Approval of Construction for the above-described facility based on the following provisions of Arizona Administrative Code (A.A.C.) R18-5-507 et seq.

On March 24, 2005, ADEQ issued a Certificate of Approval to Construct for the referenced project.

On April 13, 2005, Gregory H. Brown, P.E., certified the following:

- a final construction inspection was conducted on April 8, 2005;
- the referenced project was constructed according to the as-built plans and specifications and ADEQ's Certificate of Approval to Construct;
- water system pressure and leakage tests for the line was conducted on April 5, 2005 and the results were within the allowable leakage rates; and
- the well and piping were disinfected on April 7, 2005 according to an ADEQ-approved method.

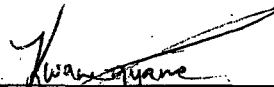
Microbiological samples were collected on April 11, 2005 and analyzed on April 12, 2005 by Statewide Disinfection Service, ADHS License No. AZ0637. The sample results were negative for total coliform.

This Approval of Construction is subject to the provisions 1-4 on page two of this approval. Be advised that A.A.C. R18-4-124 requires the owner of a public water system to maintain and operate all water production, treatment and distribution facilities in accordance with ADEQ Safe Drinking Water Rules.

RK1

PWS No.: 11-128

LTF No.: 36105


Kwame A. Agyare, P.E., Acting Manager Date Approved 4/18/05
Technical Engineering Unit
Drinking Water Section

c: TEU File No.: 20050161
DWCEU Facility File
CRO Approval of Construction File
Pinal County Health Department
Pinal County Planning & Zoning Department
AZ Corporation Commission
Engineer

Northern Regional Office
1515 East Cedar Avenue • Suite F • Flagstaff, AZ 86004
(928) 779-0313

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

**APPROVAL OF CONSTRUCTION
WATER FACILITIES
ADEQ FILE NO. 20050161
PAGE 2 OF 2: PROVISIONS CONTINUED**

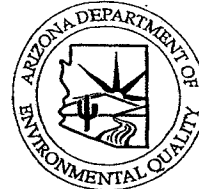
1. An initial nitrate sample taken from the well showed an MCL exceedance of 10.3mg/l. A confirmation sample taken on April 4, 2005 showed a nitrate level of 7.51mg/l. In accordance with R18-4-208(J), the average of these two samples was used to determine compliance with the MCL of 10mg/l. This result however requires that the water system shall increase monitoring frequency at the sampling point from annually to quarterly, as per R18-4-208(F).



Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • azdeq.gov



Stephen A. Owens
Director

JUN 20 2005

APPROVAL OF CONSTRUCTION

Project Description: Replacing existing well with new well with ADWR #55-201429 (also known as Morning Sun Farms Well No. 1) and connecting it to existing main as per approved plans and specifications.

Location: Town of Maricopa, Pinal County

Project Owner: Johnson Utilities Company
Address: 5230 E. Shea Blvd., Suite 220, Scottsdale, Arizona 85254

The Arizona Department of Environmental Quality (ADEQ) hereby issues an Approval of Construction for the above-described facility based on the following provisions of Arizona Administrative Code (A.A.C.) R18-5-507 et seq.

On April 29, 2005, ADEQ issued a Certificate of Approval to Construct for the referenced project.

On May 18, 2005, Gregory H. Brown, P.E., certified the following:

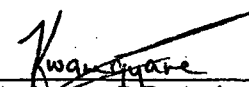
- a final construction inspection was conducted on May 18, 2005;
- the referenced project was constructed according to the approved plans and specifications and ADEQ's Certificate of Approval to Construct;

Microbiological sample was collected on March 2, 2005, and analyzed on the same day by Legend Technical Services, Inc., ADHS License No. AZ0004. The sample results were negative for total coliforms and E. coli bacteria.

This Approval of Construction authorizes the owner to begin operating the above-described facilities as represented in the approved plan on file with the ADEQ. Be advised that A.A.C. R18-5-124 requires the owner of a public water system to maintain and operate all water production, treatment and distribution facilities in accordance with ADEQ Safe Drinking Water Rules.

jd1

PWS No.: 11-128
LTF No.: 36549


Kwame A. Agyare, P.E., Acting Manager 6/03/05
Technical Engineering Unit Date Approved
Drinking Water Section

c: TEU File No.: 20050258
Pinal County Health Department
Pinal County Planning & Zoning Department
AZ Corporation Commission
Engineer

Northern Regional Office
1515 East Cedar Avenue • Suite F • Flagstaff, AZ 86004
(928) 779-0313

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

ADEQ 2005 WATER USE

JOHNSON UTILITIES SYSTEM ID NO 11-128

MONTH	NUMBER OF CUSTOMERS	GALLONS SOLD	GALLONS PUMPED	AVG. GALLONS PER HOUSEHOLD
Dec-04	8508	38,154,460	44,987,900	144.66
JAN	8867	39,483,999	39,974,500	143.64
FEB	9569	36,621,000	43,569,000	136.68
MAR	10285	41,208,000	53,364,400	129.25
APR	10553	63,920,000	77,400,400	201.90
MAY	10833	71,016,000	80,812,800	211.47
JUN				
JUL				
AUG				
SEP				
OCT				
NOV				
DEC				



Transmittal

To: ADEQ-Water Division
1110 W. Washington
Phoenix, Arizona 85007
ATTN: Helen Fernandez

Date: July 19, 2005

Job No.: 3009B033

Drawing/Spec Reference: _____

Re : Johnson Utility Company-Hardison well

We Transmit: ☐ Herewith ☐ Under Separate Cover ☒ Via Delivery

Material Format

Requested Action

Letter	Shop Drawings	For Your Approval	Your Review
<input type="checkbox"/> Memo	<input type="checkbox"/> Clarification Drawing	<input type="checkbox"/> For Your Signature	<input type="checkbox"/> Please Comment
X Prints	<input type="checkbox"/> Modification Drawing	Information	<input type="checkbox"/> Make Recommendation
<input type="checkbox"/> Sketch	<input type="checkbox"/> Specifications	<input type="checkbox"/> Resubmit	<input type="checkbox"/> Issue Construction Order
X Reports	Sepias	As Requested	For Your Use
<input type="checkbox"/> Mylars	X <u>Application</u>	<input type="checkbox"/> Issue Change Order	<input type="checkbox"/> _____

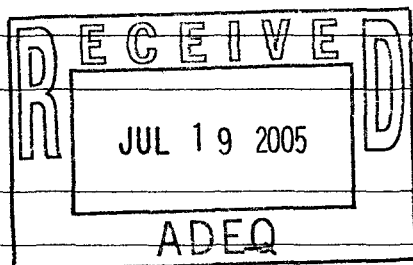
Attached to this transmittal:

Application to Construct water facilities

4 sets of prints for review of the Hardison Well

2 copies of the Design report.

Copies To: _____



Received By: *J. Carr*

Signed: Grant K. Hinderer

Grant Hinderer

Date: _____

EXHIBIT 2

APPLICATION for APPROVAL TO CONSTRUCT DRINKING WATER FACILITIES

(PLEASE SUBMIT TO THE ADEQ ENGINEERING REVIEW DESK AT 1110 W. WASHINGTON ST., PHOENIX, AZ 85007)

A. PROJECT NAME: Johnson Utilities Well, Hardison Well #1

B. PROJECT TYPE (Please check all applicable components for the OVERALL PROJECT):

☐ New Drinking Water Well or Source
☒ Water Line and Appurtenances☐ Water Treatment Plant
☐ Other: _____

C. SYSTEM NAME/PUBLIC WATER SYSTEM NUMBER/OPERATIONAL STATUS:

SYSTEM NAME: Johnson Utilities SYSTEM NUMBER 11128
☐ New System ☒ Extension to Existing System

D. PROJECT LOCATION (Please provide approximate center. Information is required to accept application):

LATITUDE 33°09'41.8"N LONGITUDE 111°31'38.1"WTOWNSHIP 3S RANGE 8E SECTION 21 QUARTER SECTION (CIRCLE) NE SE SW NWCOUNTY PinalE. PROJECT DESCRIPTION: New Well South of Bella Vista Rd, Erag U. P. R. R.

F. PROJECT ENGINEER (PLEASE PRINT):

G. PROJECT OWNER (PLEASE PRINT):

NAME	<u>Greg Brown</u>	<u>Johnson Utilities Co</u>
ADDRESS	<u>Specific Engineering LLC</u> <u>5230 E. Shea, #220</u> <u>Scottsdale, AZ 85254</u>	<u>5230 E. Shea, #200</u> <u>Scottsdale, AZ 85254</u>
PHONE NO./FAX NO.	<u>480-596-6335 / 480-596-6437</u>	<u>(480) 998-3300 / (480) 983-7008</u>
SIGNATURE/DATE	<u>[Signature]</u>	<u>[Signature]</u>

H. PLAN DOCUMENTS SUBMITTED (PLEASE SEE ADEQ FORM #222, SUBMITTAL GUIDE FOR VARIOUS PROJECT TYPES)
NOTE: INCOMPLETE SUBMITTALS WILL NOT BE LOGGED IN.

J. OWNER/AGENT AGREEMENT AND SCHEDULE: AGREEMENT-The undersigned as Project Owner or as acting Agent for the Project Owner hereby a) grants ADEQ permission to enter the site for inspections; b) authorizes the Project Engineer to prepare and submit plan documents to the ADEQ ENGINEERING REVIEW DESK; and c) agrees to construct the sanitary facilities according to the ADEQ Certificate of Approval and the approved plan documents.

CONSTRUCTION SCHEDULE-Estimated start date: A.S.A.P.Estimated completion date: DEC '05Brian P. Tompsett
TYPE OR PRINT NAMEVice President
AFFILIATION[Signature]
SIGNATURE7.12.2005
DATE

ADEQ COMPLIANCE EVALUATION:

ADEQ FILE NO: _____

IN-COMPLIANCE: _____

LTF NUMBER: _____

NON-COMPLIANCE: _____

COMMENTS: _____ SITE INSPECTION REQUIRED? ☐ NO ☐ YES

IF NECESSARY TO REPRODUCE THIS FORM, DO SO ONLY ON PLAIN WHITE PAPER

ADEQ/WQD-114DW (REV. 11/13/02) j:\WEDR\APPLICATIONS-Drinking Water\ApplicationForATC-114DW

JOHNSON UTILITY COMPANY, LLC

HARDISON WELL SITE

CONCEPTUAL DESIGN REPORT

July 2005

JOHNSON UTILITIES COMPANY

HARDISON WELL SITE CONCEPTUAL DESIGN REPORT

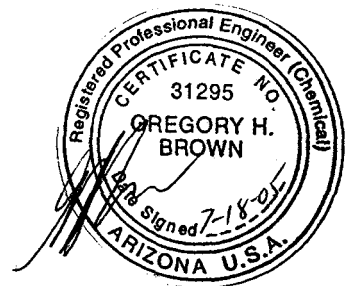
July 2005

PREPARED FOR:

Johnson Utilities, LLC
5230 E. Shea Blvd, Suite 200
Scottsdale, Arizona 85254
Phone: (480) 998-3300
Fax: (480) 483-7908

PREPARED BY:

Specific Engineering, LLC
5230 E. Shea Blvd, Suite 220
Scottsdale, Arizona 85254
Phone: (480) 596-6335
Fax: (480) 596-6437



CONCEPTUAL DESIGN REPORT - TABLE OF CONTENTS

LIST OF SECTIONS

- 1.0 INTRODUCTION
- 2.0 LOCATION
- 3.0 ORIGINAL AGRICULTURAL GROUNDWATER WELL
- 4.0 NEW REPLACEMENT SOURCE GROUNDWATER WELL
- 5.0 NEW 12-INCH TRANSMISSION MAIN
- 6.0 CALCULATIONS

LIST OF FIGURES

- FIGURE 1 VICINITY MAP (PINAL COUNTY)
- FIGURE 2 LOCATION MAP (Hardison well Site)
- FIGURE 3 FIMA FLOOD MAP



1.0 INTRODUCTION

This report is intended to document the conceptual design for the proposed water well in the Bella Vista development area for the Johnson Utilities Company (the Utility).

Johnson Utilities Company will be the operations manager of the water facility, which is to be operated by a State of Arizona licensed utility operator. The water well is to be connected to the Utility's water distribution system via a 8-inch water line in Bella Vista Road, adding to the system's storage capacity and ability to service the growing community/service area.

Since the service area for the Utility is continually expanding, this design report only addresses the conceptual design of the water facility's proposed improvements and their capabilities. The specific Utility's water system parameters (i.e., area, population, customers, demand, supply, etc.) of the service area will be addressed through other reports and/or studies such as the Master Water Plan for the Johnson Utilities Service area.

2.0 LOCATION

The proposed Hardison Well site is located approximately 13 miles Southeast of the Town of Queen Creek in Pinal County, Arizona. See Figure 1.

The facility is to be constructed in the Northeast Quarter of the Northeast Quarter of the Northeast Quarter of Section 21, Township 3 South, Range 8 East, Gila and Salt River Meridian, Pinal County, Arizona. The facility's site is a triangular shaped parcel consisting of 0.38 acres that lies south of and adjacent to Bella Vista Road and east of the Union Pacific Railroad. See Figure 2.

3.0 ORIGINAL AGRICULTURAL GROUNDWATER WELL

There is an existing water well (registration number 55-627103) that is located in the NE1/4, NE1/4, NE1/4, Section 21, T3S, R8E, this is located south of Bella Vista Road and west of the Union Pacific Railroad. This well is to be replaced by a similar replacement well that is to be located at the replacement well site shown below in Section 4.

The original well was completed in the 1957 and has been historically used for agricultural purposes. The well has a vertical turbine pump, with a motor mounted on top of the well casing, and is capable of pumping 1800gpm. The well is 720' deep, has a 20" casing, and has a 12-inch steel discharged pipe that fed irrigation canals. A replacement well is to be built due to the development of a subdivision over the existing well. This well is to be abandoned. Paper work for the abandonment has been filed with ADWR.

4.0 NEW REPLACEMENT SOURCE GROUNDWATER WELL

The new well classifies as a "replacement well" since the distance between the new well and the original well is to be less than 660 feet. The new well is located in zone C which is an area of minimal flooding as shown on the attached FEMA map, Panel Number 040077 0500 C. The site is outside of the 100-year and 500-year floods.

The replacement source groundwater well (see Construction Drawings) is to consist of:

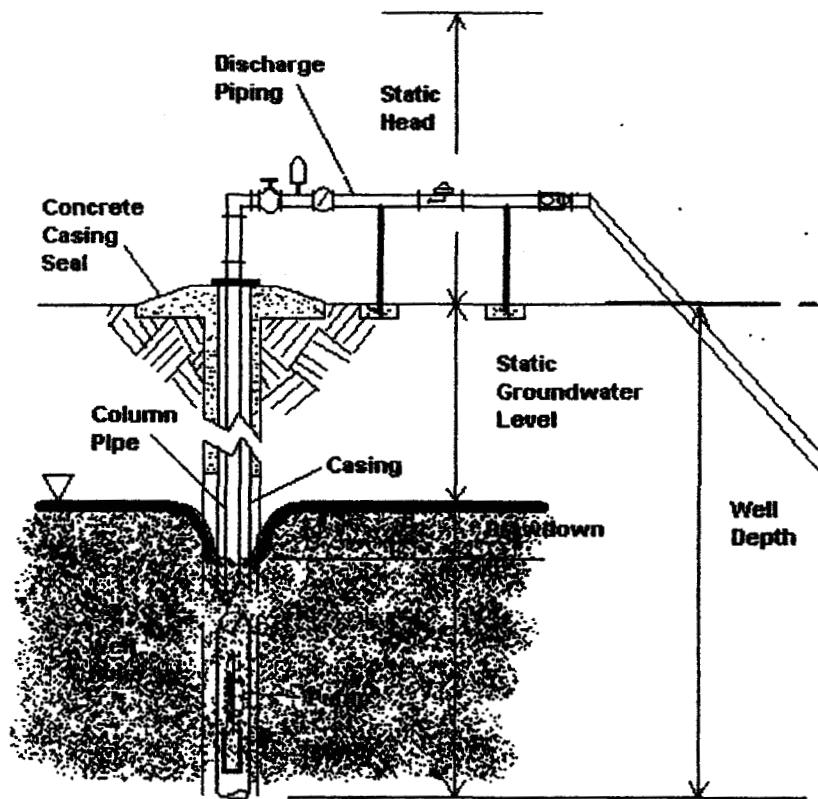
- a 12-inch diameter (900 foot deep) solid wall steel well casing pipe (the bottom 20 to 40 feet of the casing pipe is to be slotted),
- a concrete grout casing seal,
- a concrete well cap,
- a 250 Hp electric motor driven submersible turbine vertical pump (capable of delivering 1,000 gpm against a 688 ft TDH),
- an 8-inch steel column pipe,
- a 12-inch casing head cover, with vent pipe and electrical sleeve,
- an 8-inch steel well head with a plugged side outlet,
- an electrical pump control panel,
- an 8-inch isolation butterfly valve,
- an air release valve,
- an 8-inch mechanical propeller flow meter,
- an 8-inch check valve,
- a water sampling hose bib,
- associated 8-inch discharge piping,
- associated electrical conduits, wiring and components, from the well pump through the booster pumps' control panel,
- telemetry components for centralized control, if and when desired by the Utility.

5.0 NEW 8-INCH WATER MAIN

The new Hardison Well will supply water directly to the Johnson Utilities Company water transmission distribution system. A water supply transmission main will be installed from Hardison Well to the 8-inch water line in Bella Vista Road.

6.0 CALCULATIONS

6.1 Source Well Calculations



1000 gpm Source Well

WELL PUMP DESIGN PARAMETERS (*initial conditions)

depth to groundwater = 500 feet (assumed average for Johnson Utility Service area)

well drawdown = 50 feet (assumed)

line pressure = 184 feet (80 psi)

well/pump/casing depth = 900 feet (assumed)

well casing = 12 inches

column pipe = 8 inches

discharge piping = 8 inches

- pump and motor are to be enlarged in the future as the aquifer water level drops.

6.0 CALCULATIONS cont'd

6.1 Source Well Calculations cont'd

WELL PUMP DESIGN PARAMETERS cont'd

column & discharge piping headloss (H_L)

(8" pipe, flow $Q = 1,000$ gpm, velocity $V = 6.38$ fps)

<u>Item</u>	<u>Qty</u>	<u>K</u>	<u>H_L</u>
Aquifer contraction	1	0.5	0.32'
8"x4" Tee	1	0.3	0.19'
8" butterfly valve	1	0.2	0.13'
8" check valve	1	2.5	1.58'
8"-90° bend	4	0.7	1.77'
8"-45° bend	2	0.2	0.25'
8" flow meter	1		0.25'
¾" taps	2	0.3	0.38'
8" expansion joint	1	0.4	0.25'
			4.88
8" pipe	180 LF		2.44
Total H_L			7.32

Total dynamic head (TDH)

total static head = $500 - 4 = 496$ feet

friction head = 7.32 feet

Line pressure = 184 feet

Velocity head = 0.62 ft

TDH = 688 feet

NET POSITIVE SUCTION HEAD (NPSH) AVAILABLE:

For safety: $NPSH_a > NPSH_r + 2$ feet

$$*NPSH_a = Y - H_L - (P_v / \gamma) = 307 \text{ ft}$$

where: suction head $Y = 866 - (500 + 50) = 316$ ft

pipe headloss from aquifer contraction = $H_L = 0.32$ ft

water vapor pressure $P_v = 49.21$ psf @ 20 °C or 68 °F

specific weight of water $\gamma = 62.32$ pcf @ 20 °C or 68 °F

* Atmospheric pressure and soil pressure ignored. Velocity head assumed to be in the pump's $NPSH_r$

Cavitation will occur when the pressure at any location in a closed system reaches an absolute pressure equal to the saturated vapor pressure of the fluid at the fluid's pumping temperature.

6.0 CALCULATIONS cont'd

6.1 Source Well Calculations cont'd

WELL PUMP (see attached pump curve)

capacity = 1000 gpm

type = Goulds Pumps Model VIS, 3550 rpm, closed 7.96" impeller

size = 11 AHC

stages = 3 stages

horsepower = 223 Hp

first stage NPSH required = 35.8ft < 307 ft available

pump efficiency = 78 % with 3 stages

Water Vapor Pressure

		Water Vapor Pressure		
°F	°C	Pounds per Square Inch	Pounds per Square Foot	Feet of Head
40	4.4	0.1217	17.52	0.281
50	10	0.1781	25.65	0.412
60	15.6	0.2563	36.91	0.592
70	21.1	0.3631	52.29	0.815
80	26.7	0.5069	72.99	1.17
86	30	0.6155	88.63	1.42
90	32.2	0.6982	100.5	1.61
100	37.8	0.9492	136.7	2.19
110	43.3	1.275	183.6	2.94
120	48.9	1.692	243.6	3.91
130	54.4	2.223	320.1	5.14
140	60	2.889	416.0	6.68
150	65.6	3.718	535.4	8.56
160	71.1	4.741	682.7	10.95
170	76.7	5.992	862.8	13.84

Model:VIT/VIC/VIS**Size:**11AHC**Group:****60Hz RPM:**3550**Stages:**3

Job/Inqu. No.

Purchaser:

User:

Item/Equip.No:

Service:

Issued by: greg brown

Quotation No.

Order No.

Date: 7/18/05

Certified By:

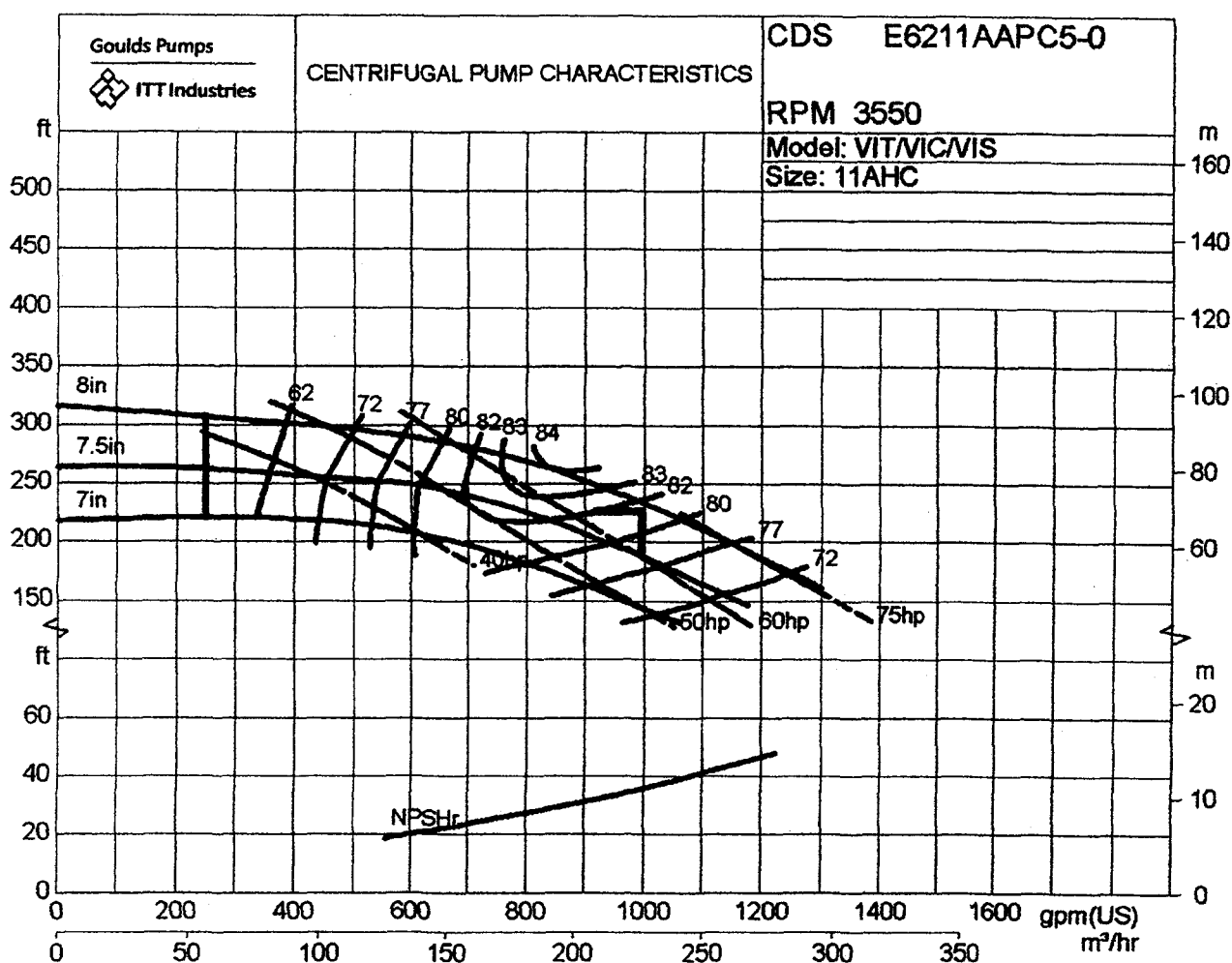
Operating Conditions

Liquid: Water
Temp.: 70 °F
Sp. Heat:
S.G./Visc.: 1/1 cp
Flow: 1000 gpm(US)
TDH: 688 ft
NPSHa: 350 ft
Req. solid size:
% Solids:
Vapor Press:

Pump Performance

Actual Pump Eff.: 77.9 %
Actual Pump Power: 222.9 hp
Mech. Seal Loss: 0 hp
Dyn. Seal Loss: 0 hp
Other Power Loss: 0 hp
Rated Total Power: 222.9 hp
Imp. Dia. First 3 Stg: 7.96 in
NPSHr: 35.8 ft
Shut off Head: 934.4 ft
Max. Solids Size: 0.5 in
Suction Specific Speed: 8400 (gpm(US) , ft)
Min. Cont. Stable Flow: 249 gpm(US)
Min. Cont. Thermal Flow:
Non-Overloading Power: 239.4 hp
Imp. Dia. Add'l Stg
Mag. Drive Circuit Flow:
Max Drive Power:
Max Drive Temp:
Max Motor Size:

Notes: 1. The Mechanical seal increased drag effect on power and efficiency is not included, unless the correction is shown in the appropriate field above. 2. Magnetic drive eddy current and viscous effect on power and efficiency is not included. 3. Elevated temperature effects on performance are not included.



6.0 CALCULATIONS (cont'd)

6.1 Source Well Calculations cont'd

Density & Specific Weight of Water at Various Temperatures

		Density (ρ) grams per cubic centimeter	
0 (solid)	32	0.9150	57.12
0 (liquid)	32	0.9997	62.41
4	39.2	1.0000	62.43
5	41	1.0000	62.43
10	50	0.9997	62.41
15	59	0.9992	62.38
16	60.8	0.9991	62.37
17	62.6	0.9989	62.36
18	64.4	0.9988	62.35
19	66.2	0.9985	62.33
21	69.8	0.9981	62.31
22	71.6	0.9978	62.29
23	73.4	0.9976	62.28
24	75.2	0.9974	62.27
25	77	0.9972	62.25
30	86	0.9957	62.16
35	95	0.9941	62.06
40	104	0.9923	61.94
45	113	0.9903	61.82
50	122	0.9881	61.68
60	140	0.9832	61.38
70	158	0.9777	61.04
80	176	0.9719	60.67
90	194	0.9651	60.25
100 (liquid)	212	0.9581	59.81
100 (gas)	212	0.0006	0.04

6.0 CALCULATIONS (cont'd)

6.2 Serviceable Development Calculations

SOURCE WATER WELL & WATER STORAGE TANK CAPACITY

Average Daily Residential Demand

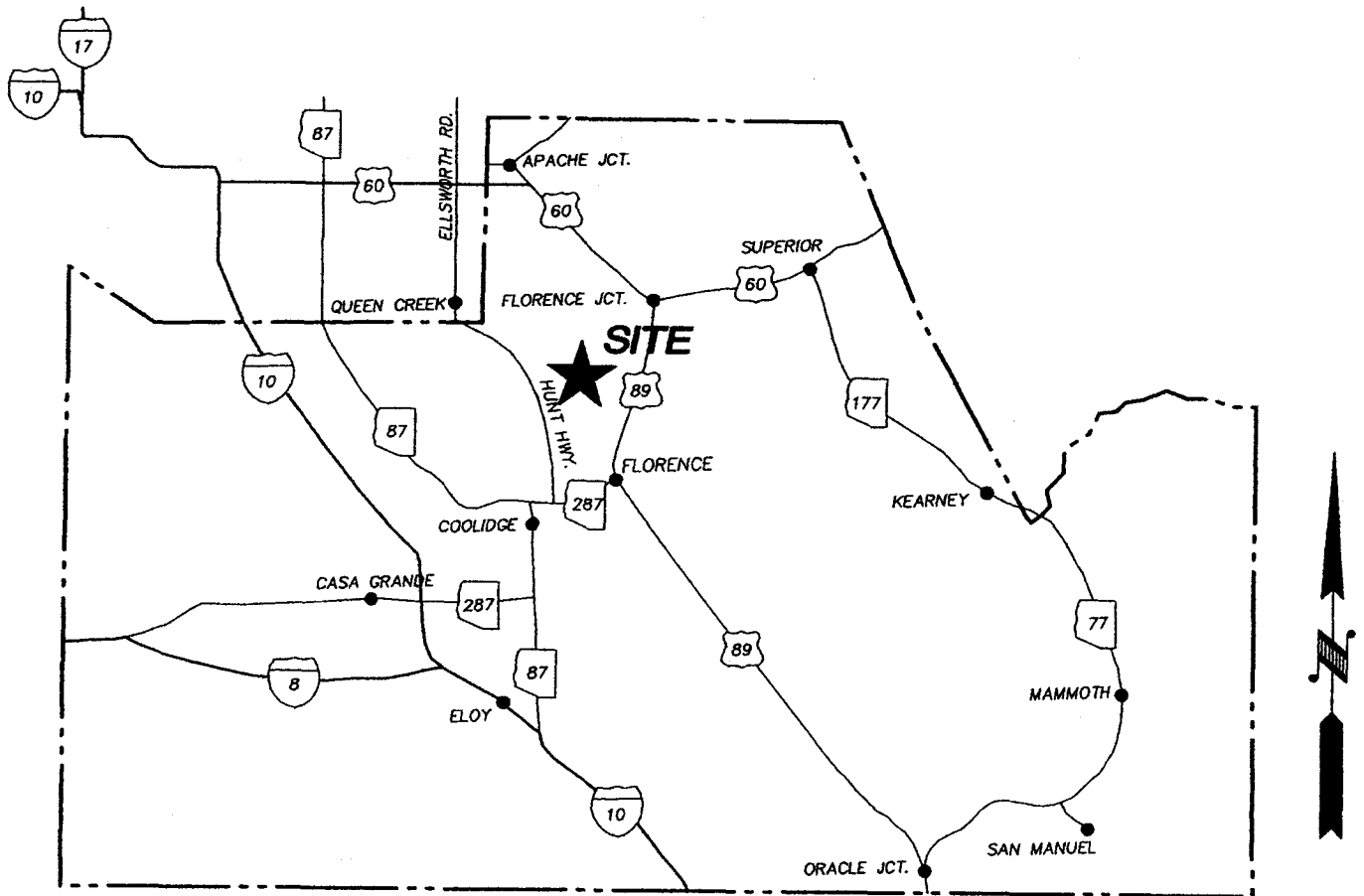
Source Well Flow Q_{sw} = 1000 gpm or 1,440,000 gpd

Serviceable population = 1,440,000 gpd / 100 gpdpc = 14,400 people

Serviceable residences = 14,400 / 2.6 = **5,538 residences**

The storage tanks at Main Johnson Ranch water plant, Circle Cross water plant, San Tan water storage tank, and the Oasis water plant at Johnson Ranch supply the fire flow for this area.

FIGURE 1



VICINITY MAP

N.T.S.

S:\Specific Engineering\3009\B033\acad\Cul-shts\EXHIBITS\VICINITY.DWG Plotted: Jul 08, 2005

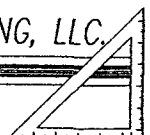
HARDISON WELL #1
VICINITY MAP

DRAWN RSW
DATE 7/2005
SCALE N.T.S.



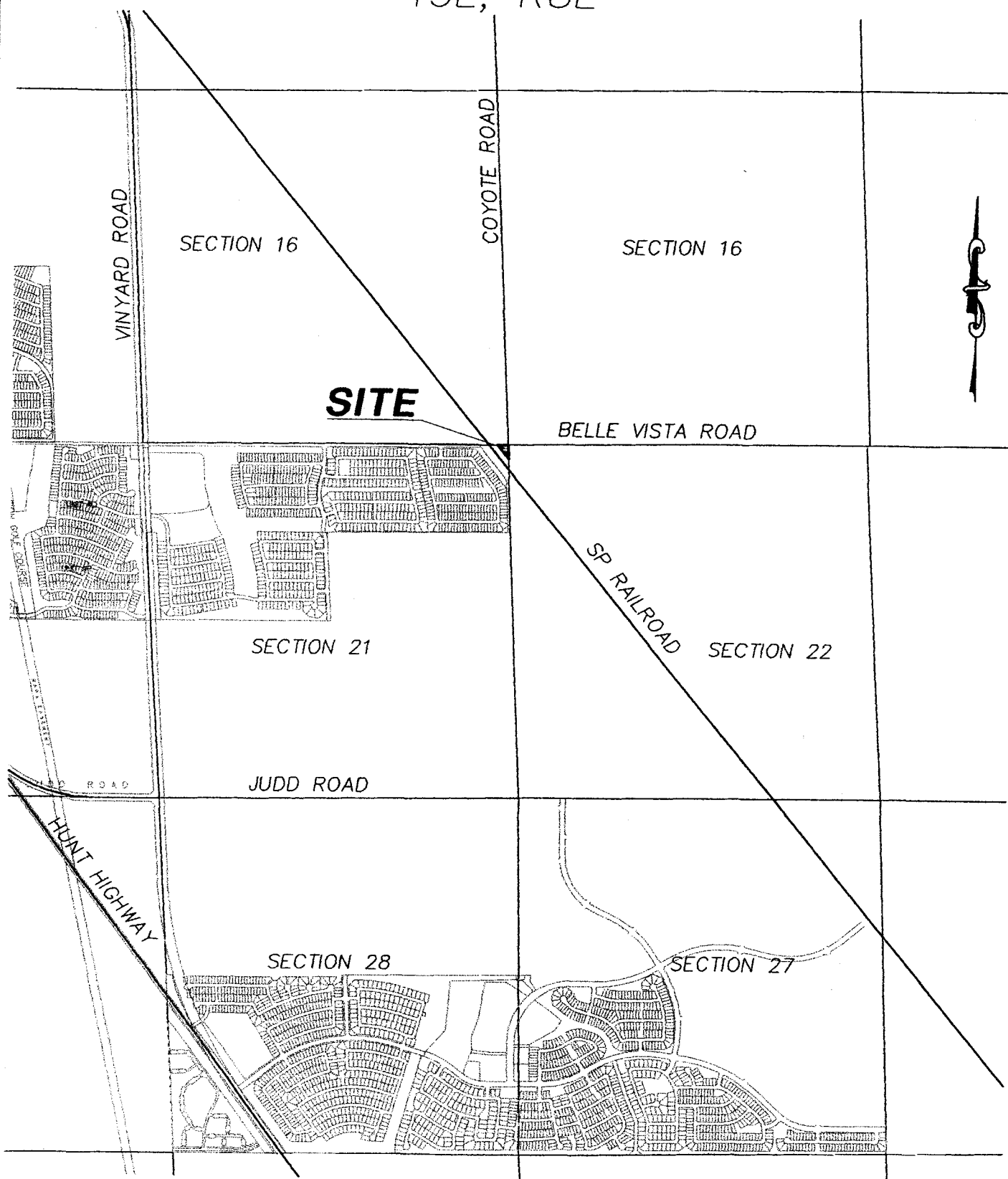
SPECIFIC ENGINEERING, LLC.

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 598-6335
FAX: (480) 598-6437



T3E, R8E

FIGURE 2



HARDISON WELL #1
LOCATION MAP

DRAWN RSW
DATE 7/2005
SCALE N.T.S.



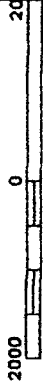
SPECIFIC ENGINEERING, LLC

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 596-6335
FAX: (480) 596-6437





APPROXIMATE SCALE



LIMIT OF STUDY

ZONE A

ZONE C

14

23

26

15

22

27

16

21

28

Site

SOUTHERN PACIFIC

MAGMA

ZONE C

HIGHWAY

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

PINAL COUNTY,
ARIZONA
(UNINCORPORATED AREAS)

PANEL 500 OF 1525

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
040077 0500 C

EFFECTIVE DATE
AUGUST 15, 1983



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

ENGINEER'S WATER NOTES:

(Maricopa County Standards)

1. ALL MATERIALS AND PRODUCTS USED IN WATER SYSTEM, INCLUDING SURFACE COATINGS AND PAINTS, SHALL CONFORM TO NSF STANDARD 61 AS PER A.A.C. R18-4-119. ALL PRODUCTS ADDED DIRECTLY TO DRINKING WATER SHALL CONFORM WITH NSF STANDARD 60. CONSTRUCTION MATERIALS USED IN WATER SYSTEMS SHALL BE LEAD-FREE PER A.A.C. R18-5-504 AND R1-1-101.
2. ALL 3/4 INCH THROUGH 2 INCH COPPER WATER SERVICE LINES SHALL BE IN CONFORMANCE WITH MAG STANDARD SPECIFICATION 754.
3. ALL 3 INCH AND SMALLER PRESSURE PVC (POLYVINYL CHLORIDE) WATER PIPE & FITTINGS SHALL BE SCHEDULE 80 TYPE I GRADE 1 IPS PVC IN CONFORMANCE WITH ASTM STANDARD D-1785 (LATEST REVISION).
4. ALL 4 INCH THROUGH 12 INCH PVC (POLYVINYL CHLORIDE) WATER MAINS SHALL BE D1818 CHPS PRESSURE CLASS 150 PVC PRESSURE PIPE IN CONFORMANCE WITH AWWA STANDARD C300 (LATEST REVISION).
5. ALL 14 INCH THROUGH 24 INCH PVC (POLYVINYL CHLORIDE) WATER MAINS SHALL BE D1825 CHPS PRESSURE CLASS 165 PVC PRESSURE PIPE IN CONFORMANCE WITH AWWA STANDARD C305 (LATEST REVISION).
6. ALL 4 INCH THROUGH 24 INCH IRON WATER MAINS SHALL BE PRESSURE CLASS 350 DUCTILE IRON PIPE WITH A CEMENT INTERIOR LINING IN CONFORMANCE WITH MAG STANDARD SPECIFICATION 750.
7. ALL 4 INCH THROUGH 24 INCH WATER MAIN FITTINGS SHALL BE CEMENT LINED DUCTILE IRON OR GRAY IRON IN CONFORMANCE WITH MAG STANDARD SPECIFICATION 750.
8. ALL BELOW GROUND IRON PIPES AND FITTINGS SHALL HAVE AN EXTERIOR PETROLEUM ASPHALTIC COATING (1 MIL THICK) AND BE ENCASED WITHIN A POLYETHYLENE ENCASEMENT IN CONFORMANCE WITH AWWA STANDARD C1005. ALL ABOVE GROUND PIPES AND FITTINGS SHALL HAVE AN EXTERIOR COATING EQUIVALENT WITH AWWA STANDARD C218.
9. ALL PVC WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THESE PLANS, WITH AWWA STANDARD C605 (LATEST REVISION), WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND WITH MAG STANDARD SPECIFICATIONS 601, 602, 610, 630, AND 631.
10. ALL DIP WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THESE PLANS, WITH AWWA STANDARD C680 (LATEST REVISION), WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND WITH MAG STANDARD SPECIFICATIONS 601, 602, 610, 630, AND 631.
11. THE CONSTRUCTION INSPECTOR IS ANY AGENT OF THE CONTRACTING PARTY THAT HAS BEEN RETAINED TO ASSURE THAT THE WORK COVERED BY THESE PLANS IS PERFORMED CORRECTLY, AND COMPLIES WITH THESE PLANS. THE CONTRACTING PARTY SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY SPECIFICATIONS.
12. ALL 4 INCH THROUGH 12 INCH MAIN FITTINGS, WATER VALVES, FIRE HYDRANTS, TAPPING SLEEVES AND DEAD ENDS SHALL HAVE APPROVED THRUST RESTRAINT PROVIDED. SEE SITE SPECIFICATIONS FOR ALLOWABLE SOIL BEARING PRESSURE. ANY THRUST BLOCKS SHALL BE IN CONFORMANCE WITH MAG STANDARD DETAILS 301, 360, 390 AND 391. ALL FITTINGS TO THRUST BLOCKING, PIPE JOINTS MAY BE RESTRAINED WITH APPROVED JOINT RESTRAINTS FOR THE REQUIRED THRUST RESISTANCE DEVELOPMENT LENGTH. THE CONTRACTOR SHALL SUBMIT THRUST BLOCKING CALCULATIONS AND/OR JOINT THRUST RESTRAINT CALCULATIONS TO THE CONSTRUCTION INSPECTOR FOR APPROVAL. THE CONSTRUCTION INSPECTOR IS TO INSPECT AND APPROVE ALL THRUST BLOCKING AND/OR JOINT RESTRAINTS PRIOR TO THE CONTRACTOR BACKFILLING THE WATER MAIN TRENCH. FAILURE OF THE CONTRACTOR TO HAVE THE THRUST BLOCKING AND/OR JOINT RESTRAINTS INSPECTED AND APPROVED BY THE CONSTRUCTION INSPECTOR MAY BE CAUSE FOR THE CONTRACTOR TO EXPOSE ANY WATER MAIN INSTALLATION FOR INSPECTION AT NO ADDITIONAL COST TO THE CONTRACTING PARTY.
13. IN THE PRESENCE OF THE CONSTRUCTION INSPECTOR, THE CONTRACTOR SHALL PERFORM PRESSURE LEAKAGE TESTS (AND MAINTAIN RECORDS OF THE RESULTS) ON THE TOTAL LENGTH (100%) OF ALL WATER MAINS INSTALLED IN ACCORDANCE WITH THESE PLANS AND WITH MAG STANDARD SPECIFICATION 610.14. FOLLOWING ARE REQUIRED TEST PRESSURES.
- CLASS 100 PVC SHALL BE TESTED AT 150 PSI.
- CLASS 150 PVC SHALL BE TESTED AT 200 PSI.
- CLASS 165 PVC SHALL BE TESTED AT 215 PSI.
- CLASS 350 DIP SHALL BE TESTED AT 215 PSI.
- CLASS 350 DIP SHALL BE TESTED AT 215 PSI.
- PIPE TO WHICH IT IS JOINED (150 PSI MINIMUM).
- PIPE SEGMENTS NOT PASSING THE PRESSURE TEST ARE TO BE CORRECTED AT NO ADDITIONAL COST TO THE CONTRACTING PARTY. FAILURE OF ANY/ALL WATER MAINS TO MAINTAIN TEST RECORDS MAY BE CAUSE FOR ANY/ALL WATER MAIN PIPE TO BE RETESTED AT NO ADDITIONAL COST TO THE CONTRACTING PARTY.
14. ALL NEW WATER PIPES, AND APPURTENANCES, SHALL BE DISINFECTED AND SHALL BE BACTERIOLOGICALLY TESTED BY AN INDEPENDENT TESTING LABORATORY. BACTERIOLOGICAL TEST RESULTS ARE TO BE NEGATIVE PRIOR TO PLACEMENT OF ANY WATER LINES INTO SERVICE. ALL WATER MAINS ARE TO BE FLUSHED PRIOR TO DISINFECTING. ALL WATER LINES (100%) SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651 (LATEST REVISION), MAG STANDARD SPECIFICATION 611 AND ADEQ ENGINEERING BULLETIN NUMBER 8.
15. 12 INCH OR GREATER WATER MAINS ARE TO HAVE A MINIMUM OF 40 INCHES OF COVER AS MEASURED FROM FINISH GRADE ABOVE WATER MAIN UNLESS NOTED OTHERWISE IN THESE PLANS. ALL COVER SHALL BE AT LEAST 12 INCH ARE TO HAVE A MINIMUM OF 48 INCHES OF COVER UNLESS NOTED OTHERWISE.
16. PERMISSIBLE DEFLECTED OTHERISE.
17. THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ANY EXISTING WATER MAIN. WHEN A CONNECTION IS CALLED FOR IN THESE PLANS, PRIOR TO THE COMMENCEMENT OF WATER MAIN WORK, THE CONTRACTOR SHALL NOTIFY THE LOCATION OF THE WATER MAIN DISCREPANCIES THAT COULD AFFECT THE INSTALLATION OF THE NEW WATER MAIN. EXISTING DEAD-END WATER MAINS SHALL BE THOROUGHLY FLUSHED PRIOR TO INSTALLATION OF THIS PROJECT.
18. ALL WATER LINE TAPS INTO EXISTING AND/OR NEW WATER MAINS SHALL BE WET TAPS ATTACHED BY THE CONSTRUCTION INSPECTOR. ALL "TAP" COCKIES/DONUTS ARE TO BE RETRIEVED AND PRESENTED TO THE CONSTRUCTION INSPECTOR. NO DRY DRILLING OR TAPPING OF WATER MAINS SHALL BE PERMITTED. PRIOR TO DRILLING OR TAPPING, THE WATER MAIN SHALL HAVE ALL ENTRAPPED AIR REMOVED AND BE WATER PRESSURIZED TO 40 PSI OR NORMAL OPERATION SYSTEM PRESSURE, WHICHEVER IS GREATER. DRILLING/TAPPING EQUIPMENT SHALL HAVE APPROVED PURGE OPENINGS AND DISCHARGE HOSE. TAPS MADE INTO MAINS SHALL BE MORE THAN 12 INCHES FROM THE PIPE JOINTS. MULTIPLE TAPS SHALL BE AT LEAST 30 INCHES APART.
19. THE LOCATION OF AIR RELEASE VALVE ASSEMBLIES SHOWN IN THESE PLANS IS FOR INFORMATION ONLY. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF HIGH POINTS IN THE INSTALLED WATER MAIN AND THEN INSTALL AIR RELEASE VALVES AT ALL HIGH POINTS. AIR RELEASE VALVE ASSEMBLIES SHALL NOT BE INSTALLED IN STREETS, DRIVEWAYS, DRAINAGEWAYS OR SIDEWALKS.

21. WATER METER BOX REQUIREMENTS (SEE MAG STD DETAILS 310-313 & 320):

21. WATER METER BOX REQUIREMENTS (SEE MAG STD DETAILS 310-313 & 320):
- #1 METER BOX
 - #2 METER BOX
 - 1-1/2 INCH METER USE - #3 METER BOX
 - 1-1/2 INCH METER USE - #4 METER BOX
 - 1-1/2 INCH METER USE - #5 METER BOX
22. ALL BUTTERFLY VALVE GRADE 1 INCH ABOVE FINISH GRADE. TOP OF METER BOXES ARE TO BE SET 1/2 INCH TO 1 INCH ABOVE FINISH GRADE.
23. ALL REQUIREMENTS OF AWWA C504 (LATEST REVISION) AND SHALL BE INTERNALLY COATED IN ACCORDANCE WITH AWWA C550 (LATEST REVISION).
24. ALL CHECK VALVES SHALL MEET THE REQUIREMENTS OF AWWA C508 (LATEST REVISION) AND SHALL BE INTERNALLY COATED IN ACCORDANCE WITH AWWA C550 (LATEST REVISION).
25. ALL FLEXIBLE COUPLINGS SHALL BE DRESSER STYLE 38 OR AN APPROVED EQUAL, AND SHALL INCLUDE A JOINT HARNESS TO PREVENT SEPARATION, UNLESS OTHERWISE NOTED IN THESE PLANS.
26. VALVE NUT EXTENSIONS, IF REQUIRED, SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
27. ALL STATIONING IS ALONG THE CENTERLINE OF STREETS UNLESS OTHERWISE INDICATED.

WATER AND SEWER SEPARATION NOTES:

WATER AND SEWER FACILITIES SHALL BE SEPARATED IN ACCORDANCE WITH THE ARIZONA ADMINISTRATIVE CODE, CHAPTER 5, ARTICLE 2, SECTION R18-5-502. SUB PARAGRAPHS 1-5 ARE PROVIDED FOR CONTRACTOR'S INFORMATION. WATER AND SEWER MAINS SHALL BE SEPARATED IN ORDER TO PROTECT PUBLIC WATER SYSTEMS FROM POSSIBLE CONTAMINATION. ALL DISTANCES ARE MEASURED PERPENDICULARLY FROM THE OUTSIDE OF THE SEWER MAIN TO THE OUTSIDE OF THE WATER MAIN. SEPARATION REQUIREMENTS ARE AS FOLLOWS:

1. a. WATER MAIN SHALL NOT BE PLACED WITHIN 6 FEET HORIZONTAL DISTANCE, AND BELOW 2 FEET, c. VERTICAL DISTANCE, ABOVE THE TOP OF A SEWER MAIN UNLESS EXTRA PROTECTION IS PROVIDED. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE SEWER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE OR WITH SLIP-JOINT DUCTILE IRON PIPE IF JOINT RESTRAINT IS PROVIDED. ALTERNATE EXTRA PROTECTION SHALL CONSIST OF ENCASEMENT BOTH THE WATER AND SEWER MAINS IN AT LEAST 6 INCHES OF CONCRETE FOR AT LEAST 10 FEET BEYOND THE AREA COVERED BY THIS SUBSECTION (C)(1)(a). b. WITHIN 2 FEET HORIZONTALLY AND 2 FEET BELOW THE SEWER MAIN.
2. NO WATER PIPE SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF A SEWER MANHOLE. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAINS AND MANHOLES SHALL BE 6 FEET, MEASURED FROM THE CENTER OF THE MANHOLE.
3. THE MINIMUM SEPARATION BETWEEN FORCE MAINS OR PRESSURE SEWERS AND WATER MAINS SHALL BE 2 FEET VERTICALLY AND 6 FEET HORIZONTALLY UNDER ALL CONDITIONS. WHERE A SEWER FORCE MAIN CROSSES ABOVE OR LESS THAN 6 FEET BELOW A WATER LINE, THE SEWER MAIN SHALL BE ENCASED IN AT LEAST 6 INCHES OF CONCRETE OR CONSTRUCTED USING MECHANICAL JOINT DUCTILE IRON PIPE FOR 10 FEET ON EITHER SIDE OF THE WATER MAIN.
4. THE SEPARATION REQUIREMENTS DO NOT APPLY TO BUILDING, PLUMBING, OR INDIVIDUAL HOUSE SERVICE CONNECTIONS. SEWER MAINS (GRAVITY, PRESSURE, AND FORCE) SHALL BE KEPT A.
5. MINIMUM OF 50 FEET FROM WELLS UNLESS THE FOLLOWING CONDITIONS ARE MET: a. WATER MAIN PIPE, PRESSURE TESTED IN PLACE TO 50 PSI WITHOUT EXCESSIVE LEAKAGE, IS USED FOR GRAVITY SEWERS AT DISTANCES GREATER THAN 20 FEET FROM WATER WELLS; OR
6. WATER MAIN PIPE, PRESSURE TESTED IN PLACE TO 150 PSI WITHOUT EXCESSIVE LEAKAGE, IS USED FOR PRESSURE SEWERS AND FORCE MAINS AT DISTANCES GREATER THAN 20 FEET FROM WATER WELLS. "EXCESSIVE LEAKAGE" MEANS ANY AMOUNT OF LEAKAGE WHICH IS GREATER THAN THAT PERMITTED UNDER THE AWWA STANDARD APPLICABLE TO THE PARTICULAR PIPE MATERIAL OR VALVE TYPE.

JOHNSON UTILITIES' WATER NOTES:

- THE CONTRACTOR SHALL NOTIFY JOHNSON UTILITIES A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO ANY CONSTRUCTION TO SCHEDULE A PRECONSTRUCTION CONFERENCE. WORK SHALL NOT COMMENCE UNTIL A "NOTICE TO PROCEED" HAS BEEN ISSUED BY JOHNSON UTILITIES AND THE CERTIFICATION OF APPROVAL TO CONSTRUCT" HAS BEEN RECEIVED BY THE UTILITY FROM THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY. ANY PIPE INSTALLED PRIOR TO THE "NOTICE TO PROCEED" SHALL BE REMOVED BY THE CONTRACTOR AT THE CONTRACTOR'S OWN EXPENSE.
2. ALL AGREEMENTS MUST BE EXECUTED BEFORE ANY WATER LINE CONSTRUCTION. WATER MAINS ARE TO BE INSTALLED AFTER SEWER INSTALLATION AND TO WITHIN 6 INCHES OF FINAL GRADE. A REGISTERED LAND SURVEYOR OR A REGISTERED LAND SURVEYOR MUST CERTIFY TO JOHNSON UTILITIES THAT THE ROUGH GRADE IS WITHIN 6 INCHES OF FINAL GRADE PRIOR TO THE UTILITY ISSUING A "NOTICE TO PROCEED".
3. THE CONTRACTOR IS REQUIRED TO NOTIFY ALL WATER USERS THAT COULD BE AFFECTED BY A POSSIBLE SERVICE INTERRUPTION OR INCONVENIENCE DURING CONSTRUCTION AND IS REQUIRED TO PROVIDE EACH NOTIFIED WATER USER WITH A CONTACT NUMBER, WHICH THE CONTRACTOR CAN BE SHUT IN THE EVENT OF A SERVICE INTERRUPTION.
4. IF NEW CONSTRUCTION REQUIRES THE WATER TO BE SHUT OFF TO MAKE TIE-INS TO THE EXISTING SYSTEM, THE CONTRACTOR SHALL PROVIDE JOHNSON UTILITIES WITH A WRITTEN SCHEDULE OF THE PROPOSED CONNECTIONS AT LEAST 48 HOURS PRIOR TO THE START OF SUCH TIE-INS. HOWEVER, NO WATER IS TO BE TURNED OFF UNTIL ALL AFFECTED WATER USERS HAVE BEEN NOTIFIED BY THE CONTRACTOR OF THE SCHEDULE. THE UTILITY APPROVED TURN OFF NOTICES SHALL BE GIVEN OUT A MINIMUM OF FOUR (4) HOURS BEFORE THE WATER IS TO BE TURNED OFF. NO CONNECTION TO THE EXISTING JOHNSON UTILITIES SYSTEM WILL BE PERMITTED ON ANY WORKDAY AFTER 10:30 A.M. OR ON ANY SATURDAY OR SUNDAY, UNLESS PRIOR APPROVAL HAS BEEN OBTAINED IN WRITING FROM JOHNSON UTILITIES. TIE-INS TO EXISTING WATER MAINS WILL NOT BE ALLOWED UNTIL BACTERIA RESULTS FOR NEW WATER LINES ARE REPORTED NEGATIVE.
5. THE CONTRACTOR SHALL PROVIDE JOHNSON UTILITIES WITH A BACK FLOW PREVENTING PROGRAM A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO COMMENCING ANY WATER LINE CONSTRUCTION.
6. ALL WATER MAINS ARE TO BE INSPECTED BY JOHNSON UTILITIES BEFORE BACKFILL. FINAL ACCEPTANCE WILL NOT BE GRANTED WITHOUT A SIGNED RELEASE FROM THE JOHNSON UTILITIES' CONSTRUCTION INSPECTOR STATING THE INSPECTION HAD BEEN PERFORMED AND THAT THE WORK WAS ACCEPTABLE.
7. THE DEVELOPER/CONTRACTOR IS TO PAY FOR ALL WATER CONSTRUCTION INSPECTION FEES. ALL FEES ARE TO BE PAID IN FULL BEFORE THE ACCEPTANCE OF ANY NEW WATER SYSTEM BY JOHNSON UTILITIES.
8. THE CONTRACTOR SHALL NOTIFY JOHNSON UTILITIES FOUR (4) DAYS IN ADVANCE FOR SCHEDULING WATER MAIN TESTS.
9. AFTER THE PAVING & CURBS HAVE BEEN INSTALLED, THE JOHNSON UTILITIES' CONSTRUCTION INSPECTOR WILL CHECK VALVE RISERS AND FIRE HYDRANTS FOR OPERATION. MAL-FUNCTIONING UNITS ARE TO BE REPAIRED OR REPLACED BY THE CONTRACTOR.
10. FINAL ACCEPTANCE WILL NOT BE INSTALLED UNTIL THE PIPE CERTIFICATION, THE BACKFILL CERTIFICATION, THE VALVE INSTALLATION CERTIFICATION, THE PASSING OF MICROBIOLOGICAL TESTS AND THE A.D.E.Q. "CERTIFICATION OF APPROVAL TO OPERATE" HAVE BEEN RECEIVED AND ACCEPTED BY JOHNSON UTILITIES. "AS BUILT" PLANS ARE TO BE PROVIDED TO JOHNSON UTILITIES BY THE CONTRACTOR BEFORE ACCEPTANCE BY JOHNSON UTILITIES (THREE (3) XEROX COPIES ARE REQUIRED BY THE UTILITY).
11. ALL CONSTRUCTION WATER TO BE METERED WITH AN APPROPRIATE SIZE WATER METER PRIOR TO THE PAVING OF THE WATER METER AND BACKFLOW PREVENTER. THE CONTRACTOR SHALL CHECK WITH JOHNSON UTILITIES FOR AVAILABILITY OF THESE ITEMS.
12. THE CONTRACTOR SHALL HAVE ALL WATER VALVES IDENTIFIED AND LOCATED PRIOR TO PAVING AND SHALL HAVE ALL VALVE BOXES SET TO FINAL GRADE PRIOR TO PAVING.
13. ALL CURB STOPS SHALL BE LOCATED AND PROTECTED DURING ALL PHASES OF CONSTRUCTION.
14. WATER SERVICES ARE TO REMAIN MARKED DURING CONSTRUCTION. NO DRAINAGEWAYS OR APRONS TO DRAINAGEWAYS ARE TO BE INSTALLED IN DRAINAGEWAYS OR APRONS TO DRAINAGEWAYS UNLESS ANY RELOCATION OF SERVICES ARE TO BE BY THE FUTURE LOT OWNER, INCLUDING INDIVIDUAL LOT DEVELOPERS OR BUILDERS WILL BE REQUIRED TO INSTALL A CUTOFF VALVE WITHIN 18 INCHES OF THE METER ON THE CUSTOMER'S SIDE IN ACCORDANCE WITH THE JOHNSON UTILITIES' STANDARDS.
15. THE PAVING CONTRACTOR IS TO MARK THE TOP OF CURBS WITH "W" AT ALL SERVICE LOCATIONS.
16. NO WATER BOXES NOR LIDS SHALL BE INSTALLED WITHIN CONCRETE PAVED DRIVEWAYS OR SIDEWALKS.
17. DURING INSTALLATION OF DRAINAGE CROSSINGS, JOHNSON UTILITIES RESERVES THE RIGHT TO HAVE THE CONTRACTOR MAKE MODIFICATIONS OF CROSSINGS AS JOHNSON UTILITIES DEEMS NECESSARY.
18. ALL INSTALLED MAINLINE VALVES ARE TO BE AWWA C500 OR AWWA C509 AND JOHNSON UTILITIES APPROVED.

PNAL COUNTY NOTES:

- DEVELOPER SHALL OBTAIN A PINAL COUNTY RIGHT OF WAY
USE PERMIT PRIOR TO ANY WORK BEING PERFORMED WITHIN
THE COUNTY RIGHT OF WAY.
1. TRAFFIC CONTROL AND BARRICADING SHALL BE ACCORDING TO THE
MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES OR PINAL
COUNTY REQUIREMENTS. CONTRACTOR TO SUPPLY LIGHTED
BARRICADES AT 50' INTERVALS WITH OPEN TRENCH SIGNAGE.
ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION
COVERED BY THESE PLANS SHALL BE IN ACCORDANCE
WITH THE MAG STANDARD SPECIFICATIONS AND DETAILS.
2. NO TRENCH TO BE LEFT OPEN/UNCOVERED AFTER WORKING HOURS.
CONTRACTOR IS RESPONSIBLE FOR BLUE STAKE MARKING
ALL AS CONSTRUCTION IS IN PROGRESS.

1. MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION) AND THE JOHNSON UTILITIES COMPANY (JUC) DESIGN GUIDE AND STANDARD DETAILS ARE INCORPORATED INTO THESE PLANS IN THEIR ENTIRETY.

1. MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION) AND THE JOHNSON UTILITIES COMPANY (JUC) DESIGN GUIDE AND STANDARD DETAILS ARE INCORPORATED INTO THESE PLANS IN THEIR ENTIRETY.

2. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THESE PLANS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

3. THE ENGINEER RESERVES THE RIGHT TO DETERMINE WHICH PORTIONS (IF ANY) OF THE MAG SPECIFICATIONS AND DETAILS AND THE JUC SPECIFICATIONS THAT ARE APPLICABLE, SHALL CONTRADICT OR CONFLICT WITH THE CONSTRUCTION OF THESE PLANS. TO MAG STANDARDS AND THE JUC STANDARDS, THE CONSTRUCTION OF THESE PLANS SHALL TAKE PRECEDENCE.

4. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, MATERIALS, AND SAFETY USED DURING CONSTRUCTION UNLESS SPECIFICALLY ADDRESSED OTHERWISE ON THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS.

5. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THESE PLANS, INCLUDING BUT NOT LIMITED TO THE OCCUPATIONAL SAFETY AND HEALTH ACT.

6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING (AT THE CONTRACTOR'S SOLE EXPENSE) AND COMPLYING WITH ALL PERMITS AND LICENSES REQUIRED TO COMPLETE ALL WORK COVERED BY THESE PLANS. EACH BIDDING CONTRACTOR CERTIFIES, BY SUBMITTING A BID PROPOSAL FOR THE WORK COVERED BY THESE PLANS, THAT HE/SHE AND HIS/HER SUBCONTRACTORS HOLDS A CURRENT LICENSE(S) ISSUED BY THE STATE OF ARIZONA REGISTRAR OF CONTRACTORS FOR THE WORK TO BE PERFORMED.

7. THE QUANTITIES AND SITE CONDITIONS DEPICTED ON THESE PLANS ARE FOR INFORMATION ONLY AND ARE SUBJECT TO CHANGE. THE CONTRACTOR SHALL VERIFY CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS. EACH BIDDING CONTRACTOR CERTIFIES, BY SUBMITTING A BID PROPOSAL FOR THE WORK COVERED BY THESE PLANS, THAT HE/SHE HAS THOROUGHLY EXAMINED THESE PLANS AND THE LOCATION WHERE THE WORK IS TO BE PERFORMED, IS FAMILIAR WITH LOCAL CODES, AND HAS READ AND UNDERSTOOD THE CONTRACT DOCUMENTS AS THEY RELATE TO THE PHYSICAL CONDITIONS PRESENT OR TO BE ENCOUNTERED IN THE PERFORMANCE OF THE WORK AT SUCH LOCATION.

8. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. CONTRACTORS ARE RESPONSIBLE FOR ANY DAMAGES TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED UTILITY AND/OR FACILITY (AT THE CONTRACTOR'S SOLE EXPENSE) SHALL CALL FOR BLUE STAKE LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY EXCAVATION.

9. DURING THE DEVELOPMENT OF THESE PLANS, FACILITIES SUCH AS EXISTING FACILITIES b) STRUCTURALLY UNSOUND FACILITIES, c) OVERBORED FACILITIES b) UNLOCATED FACILITIES WERE NOT INVESTIGATED TO ANY DEGREE OF CERTAINTY SUCH THAT THESE PLANS REPRESENT THE TOTAL IMPACT OF THE PROPOSED WORK ON ALL EXISTING FACILITIES. THEREFORE, UNIDENTIFIED ADDITIONAL WORK AND/OR UTILITY RELOCATION MIGHT BE REQUIRED IN ORDER TO COMPLETE THE WORK COVERED BY THESE PLANS. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING PARTY IMMEDIATELY UPON DISCOVERY OF ANY EXISTING FACILITIES OR UTILITY RELOCATION. WHEN AVOIDANCE OR RELOCATION OF THE CONTRACTING PARTY PRIOR TO PROCEEDING WITH THE WORK IS REQUIRED, THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF THE CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.

10. ALL GRADING, EXCAVATION, CUTS, FILL, TRENCHING, PIPE BEDDING AND BACKFILL SHALL COMPLY WITH THE RECOMMENDATIONS SET FORTH IN THE SOILS GEOTECHNICAL REPORT FOR THIS PROJECT. IN ADDITION TO THE MAG STANDARDS AND DETAILS AND THE JUC STANDARDS, THESE PLANS AND ALL OTHER CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE.

11. THE CONTRACTING PARTY, AND/OR THE CONTRACTOR IS RESPONSIBLE FOR

1A. IN ADDITION TO UTILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE AND PROTECTION OF ALL EXISTING PUBLIC AND PRIVATE IMPROVEMENTS IN THE WORK AREA. IMPROVEMENTS THAT HAVE BEEN REPAIRED OR DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED, INCLUDING CLEANUP, TO THE SATISFACTION OF THE CONTRACTING PARTY, AT THE CONTRACTOR'S SOLE EXPENSE.

1B. THE CONTRACTOR SHALL BE SPECIFICALLY NOTICED ON THESE PLANS TO PROTECT EXISTING FACILITIES AND UTILITIES. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL SUPPLEMENTARY GUARDS, FENCES, APPURTENANCES AND DEVICES INCIDENTAL TO, OR NECESSARY FOR, A SOUND, SECURE, COMPLETE, FUNCTIONAL AND ACCEPTABLE INSTALLATION, AT NO ADDITIONAL COST TO THE CONTRACTING PARTY.

1C. THE CONTRACTOR SHALL BE GLASS "X" AND REINFORCING STEEL SHALL BE GRADE 60 UNLESS NOTED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS.

21. ALL PRIMARY PARTIES HAVING INTEREST IN THE WORK COVERED BY THESE PLANS SHALL EXECUTE ALL CONTRACTS AND AGREEMENTS BETWEEN THE PARTIES PRIOR TO COMMENCING CONSTRUCTION. PRIMARY PARTIES INCLUDE, BUT ARE NOT LIMITED TO, THE CONTRACTING PARTY, THE CONTRACTOR, THE ULTIMATE OWNER OF LABORATORY IMPROVEMENTS, THE INSPECTING ENGINEER AND THE TESTING LABORATORY.

22. THE CONTRACTING PARTY OR THE CONTRACTOR SHALL PAY FOR ALL INSPECTIONS, FEES AND TESTING FEES. ALL FEES ARE TO BE PAID IN FULL, AS EVIDENCED BY SIGNED RECEIPTS, PRIOR TO THE ULTIMATE OWNER'S PARTIAL OR FINAL ACCEPTANCE OF ANY IMPROVEMENTS COVERED BY THESE PLANS.

23. WORK COVERED BY THESE PLANS SHALL BE INSPECTED BY AN ARIZONA REGISTERED PROFESSIONAL ENGINEER. WORK SHALL ALSO BE TESTED BY A REGISTERED TESTING LABORATORY. THE CONTRACTOR SHALL OBTAIN ACCEPTANCE OF THE IMPROVEMENTS BY THE ULTIMATE OWNER PRIOR TO FINAL ACCEPTANCE OF THE WORK.

24. THE ENGINEER AND TESTING LABORATORY SHALL CERTIFY THAT THE WORK WAS SATISFACTORILY INSPECTED AND TESTED; AND, THAT THE WORK PERFORMED IS ACCEPTABLE. THE CERTIFICATION BY THE ENGINEER AND/OR THE TESTING LABORATORY DOES NOT RELIEVE THE CONTRACTOR FROM ANY GUARANTEES OR WARRANTIES AS SPECIFIED IN MAG SECTION 10B.8.

25. IF THE CONTRACTOR ENCOUNTERS UNANTICIPATED CONDITIONS DURING CONSTRUCTION OF THESE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER'S ORIGINAL DESIGN FOR THESE PLANS. THE CONTRACTING PARTY SHALL REVIEW AND APPROVE OR SUPPLEMENTAL IMPROVEMENT PLANS ARE PREPARED AND SUBMITTED TO THE ULTIMATE OWNER FOR REVIEW AND APPROVAL.

26. THIRTY DAYS PRIOR TO DESTRUCTION OR REMOVAL OF CACTUS OR OTHER NATIVE PLANTS, THE CONTRACTOR SHALL NOTIFY THE ARIZONA COMMISSIONER OF AGRICULTURE AND HORTICULTURE.

27. THE CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH ALL OTHER CONTRACTORS, AGENCIES AND UTILITY COMPANIES INVOLVED IN THE ONGOING CONSTRUCTION AT THE SITE.

28. THE CONTRACTOR SHALL FURNISH, HAUL, AND APPLY ALL WATER NECESSARY TO COMPLETE THE WORK COVERED BY THESE PLANS, INCLUDING THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITIES IN ORDER TO MEET COUNTY AIR POLLUTION REGULATIONS. CONSTRUCTION WATER IS INCIDENTAL TO THE WORK PERFORMED. THERE WILL NOT BE A SEPARATE MEASUREMENT FOR PAYMENT.

29. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE AND ALL CONSTRUCTION ACTIVITIES COVERED UNDER THESE PLANS SO AS TO PREVENT DISPERSAL OF CONSTRUCTION MATERIALS, EQUIPMENT FLUIDS OR CONTAMINANTS. THEREFORE, THE CONTRACTOR SHALL CONDUCT HIS/HER OPERATIONS OF EQUIPMENT MAINTENANCE ACTIVITIES SUCH THAT THEY WILL NOT RESULT IN THE SPILL OF OIL OR GREASEY SUBSTANCES ON THE SITE OR INTO DRAINAGE DITCHES OR CREEKS.

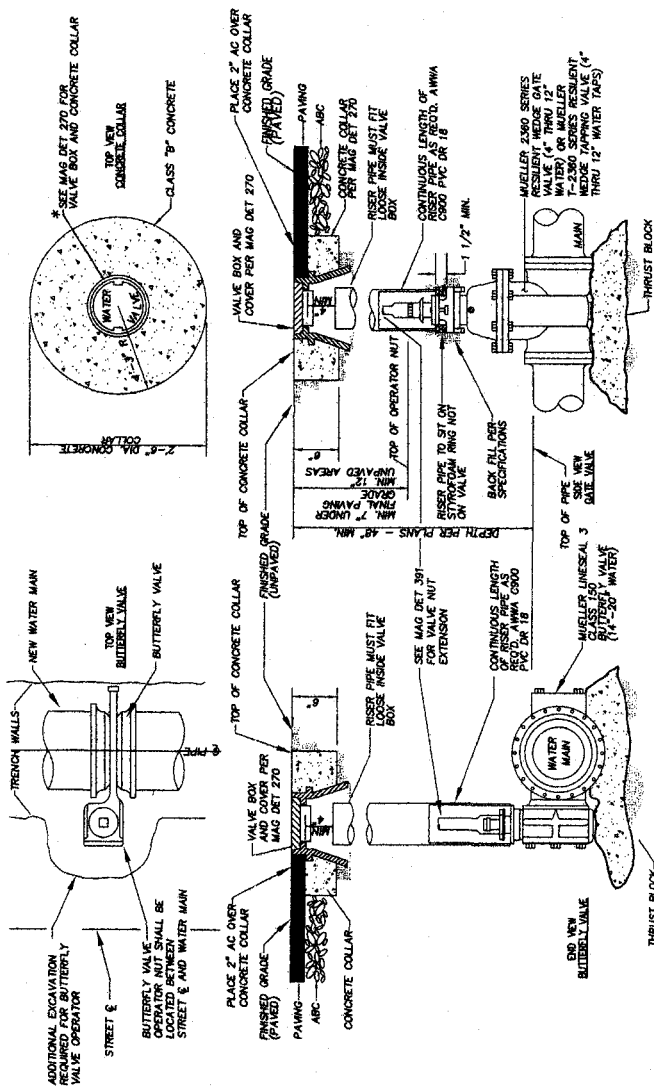
30. THE CONTRACTING PARTY IS NOT LIABLE FOR ANY DELAYS DUE TO DAMAGE TO UTILITIES CAUSED BY CONTRACTOR'S CONSTRUCTION ACTIVITIES.

31. ALL PEDESTRIAN PATHWAYS/SIDEWALKS ARE TO MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA). SHOULD THE WORK COVERED BY THESE PLANS NOT MEET ADA REQUIREMENTS, THE CONTRACTOR IS TO CEASE WORK IN THE AREA OF CONCERN AND CONTACT THE ENGINEER FOR DIRECTION. SOME ADA REQUIREMENTS ARE: A) MAXIMUM CROSS SLOPE IS 2%; B) MAXIMUM LONGITUDINAL SLOPE IS 5%; C) MAXIMUM RAMP SLOPE IS 8.33%; D) MAXIMUM FLAT RAMP SIDE SLOPE IS 10%; E) LEVEL LANDINGS ARE REQUIRED AT THE BOTTOM AND TOP OF RAMPS.

32. THE CONTRACTOR SHALL COMPLY WITH THE ARIZONA ADMINISTRATIVE CODE TITLE 18, CHAPTER 4, ARTICLE 1, SECTION 18B-4-119, ALL MATERIALS AND PRODUCTS WHICH COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 61. ALL PRODUCTS ADDED DIRECTLY TO DRINKING WATER SHALL CONFORM WITH NSF STANDARD 60.



A VALVE AND VALVE BOX INSTALLATION DETAIL

(OR APPROVED EQUAL)
N.T.S.

[illegible]

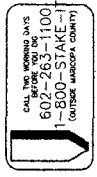
HARDISON WELL #1



- 1 INSTALL 24" SLIDING GATE
- 2 INSTALL 8" CHAIN LINK FENCE
- 3 INSTALL SIGN ON FENCE GATE
- 4 INSTALL 8" X 8" TAPPING SLEEVE AND 8" GATE VALVE
- 5 INSTALL WELL 
- 6 INSTALL CRUSHED ROCK OR APPROVED EQUAL
- 7 INSTALL YARD LIGHT 
- 8 NOT USED
- 9 INSTALL 73 LF 8" C900 PVC PIPE
- 10 INSTALL WELL ELECTRICAL SERVICE PANEL

NOTES:

1. ALL SITE ELECTRICAL WORK IS TO BE PERFORMED BY LICENCED ELECTRICIAN AND INSTALLED PER EQUIPMENT MANUFACTURERS' RECOMMENDATIONS.
2. WATER MAIN SHALL HAVE THRUST BLOCKING OR JOINT RESTRAINTS FOR THE ENTIRE THRUST RESTRAINT LENGTH AS REQUIRED AT ALL FITTINGS FOR 150 PSI TEST PRESSURE



CONSTRUCTION NOTES

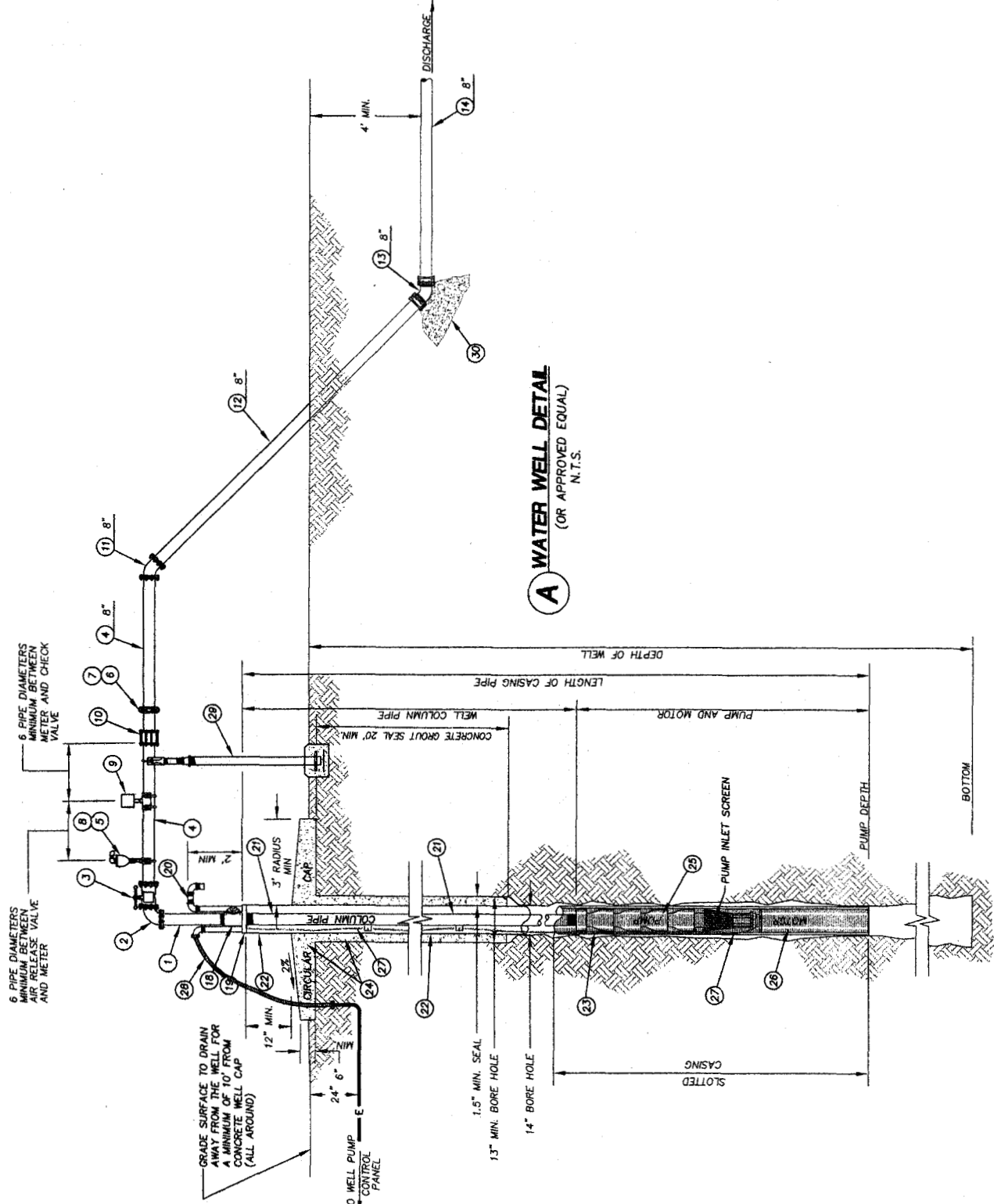
- SCHEDULE 40 STEEL (FLG X MNPT) WELL COLUMN PIPING
- 90° BEND (FLG X FLG)
- BUTTERFLY VALVE (FLG X FLG) MUELLER "UNISEAL III" (CLASS 150) OR APPROVED EQUAL
- CLASS 350 DIP (FLG X FLG) WELL DISCHARGE PIPING
- 3/4" FNPT SERVICE SADDLE
- 1/2" FNPT SERVICE SADDLE
- 1/2" NPT SAMPLING HOSE BIBB WITH SMOOTH NOSE OUTLET (150 PSI WORKING PRESSURE)
- 3/4" FNPT AIR RELEASE VALVE VAL-MATIC MODEL 22.4 OR APPROVED EQUAL (175 PSI WORKING PRESSURE)
- BOLT-ON SADDLE FLOW METER WITH TOTALIZER (150 PSI WORKING PRESSURE, UP TO 1500 GPM RANGE) MICROMETER MC-PROPELLER MODEL M0300 OR APPROVED EQUAL
- WATER STYLE SILENT CHECK VALVE, VAL-MATIC 1400 SERIES OR APPROVED EQUAL WITH NECESSARY BOLTS, NUTS AND GASKETS.
- 45° BEND (FLG X FLG)
- CLASS 350 DIP (FLG X PE) WELL DISCHARGE PIPING
- 45° IRON BEND (PUSH ON JOINTS).
- C900 PVC WELL DISCHARGE PIPE
- STEEL WELL HEAD TEE WITH PLUG (WELDED TO CASING COVER)
- STEEL CASING COVER (WELDED TO CASING)
- 1" GALV. STEEL VENT PIPE & FITTINGS
- SCHEDULE 40 STEEL COLUMN PIPE WITH NPT COUPLING JOINTS
- SOLID WALL STEEL WELL CASING PIPE WITH WELDED JOINTS
- SLOTTED WALL STEEL WELL CASING PIPE WITH WELDED JOINTS
- MAG 778 CONCRETE COARSE GROUT CASING SEAL AND WELL CAP (2500 PSI)
- SUBMERSIBLE TURBINE WELL PUMP
- SUBMERSIBLE PUMP MOTOR
- SUBMERSIBLE ELECTRIC CABLE
- ELECTRIC CONDUIT AND WIRING FROM PUMP MOTOR TO WELL PUMP CONTROL PANEL
- PIPE SUPPORT
- THRUST BLOCKING PER MAG STDS (OR APPROVED JOINT RESTRAINTS)

PROPOSED WELL DATA TABLE

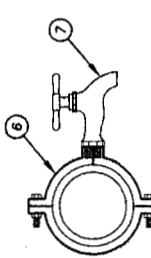
CONSTRUCTION NOTE NUMBER	DESIGN DATA FOR WELL	DATA
	ADWR WELL INFORMATION	NOT ISSUED
	REGISTRATION NUMBER	
25, 26	WELL PUMP & MOTOR	DOULD/FRANKLIN
25, 26	MANUFACTURER	
25, 26	MODEL	11AHC
25, 26	PUMP DEPTH	800
25, 26	PUMP RATE (TARGET)	1000
26	TOTAL HEAD	
26	HORSEPOWER	250
25	STAGES	3
26	VOLTAGE	460
26	PHASE	3
26	HERTZ	
26	RPM	3600
26	DEPTH OF WELL	900
22, 23	STATIC WATER LEVEL	500
22, 23	STEEL WELL CASING PIPE	16" O.D. - 80
22, 23	TOTAL LENGTH	12' 80-900
		900
18	WELL HEAD TEE	8"
18	WELL HEAD PLUG	8"
21	WELL COLUMN PIPE	8"
21	LENGTH	
4, 12, 14	WELL DISCHARGE PIPING DIAMETER	8"

NOTES

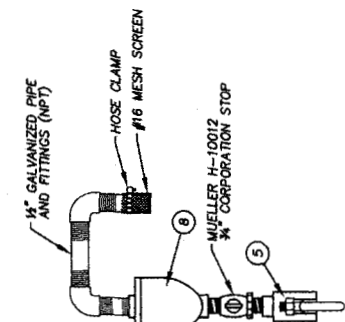
- WELL PUMP IS TO BE ACTIVATED/ DEACTIVATED AUTOMATICALLY FROM REMOTE WATER LEVEL SENSORS AND CONTROLS AT WATER STORAGE TANK.
- WELL DRILLER IS TO FINALIZE PUMP, MOTOR, CASING AND COLUMN PIPE SELECTION AFTER HE/SHE HAS DETERMINED THE AQUIFER STATIC WATER LEVEL AND THE NECESSARY CORRECT DATA TABLE IF NECESSARY.
- WELL PUMP IS TO BE INSTALLED WITH ADEQUATE AVAILABLE NET POSITIVE SUCTION HEAD.



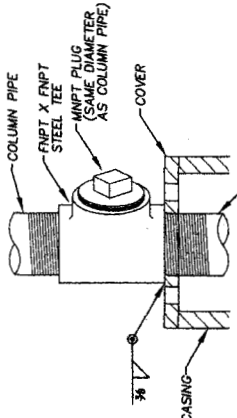
A WATER WELL DETAIL (OR APPROVED EQUAL) N.T.S.



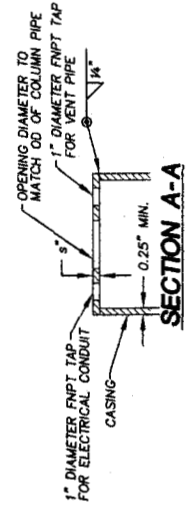
7 SAMPLING HOSE BIBB DETAIL (OR APPROVED EQUAL) N.T.S.



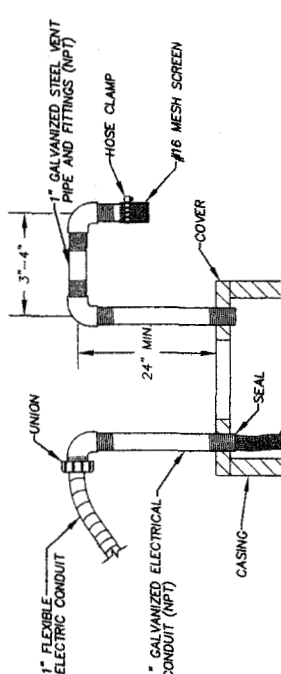
8 AIR RELEASE VALVE (OR APPROVED EQUAL) N.T.S.



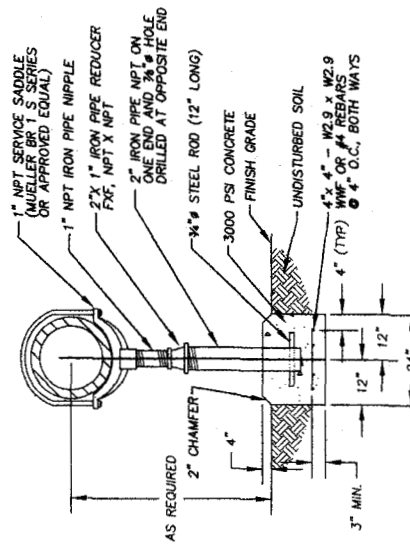
18 WELL HEAD DETAIL (OR APPROVED EQUAL) N.T.S.



19 WELL CASING COVER DETAIL (OR APPROVED EQUAL) N.T.S.



20 ELECTRIC CONDUIT & VENT PIPE DETAIL (OR APPROVED EQUAL) N.T.S.

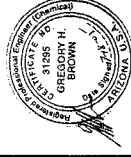


29 PIPE SUPPORT DETAIL (OR APPROVED EQUAL) N.T.S.



HARDISON WELL #1

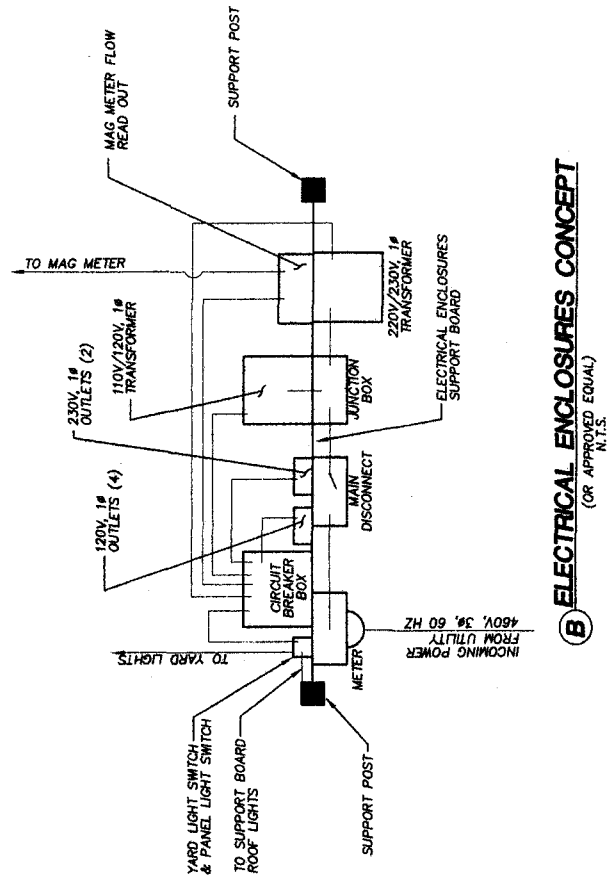
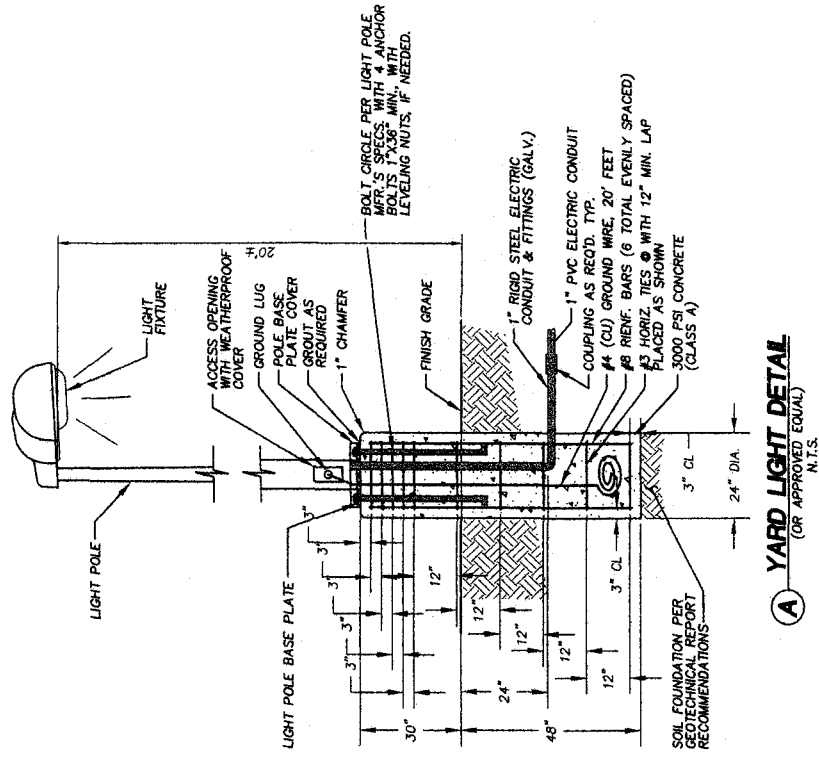
ELECTRIC DETAILS

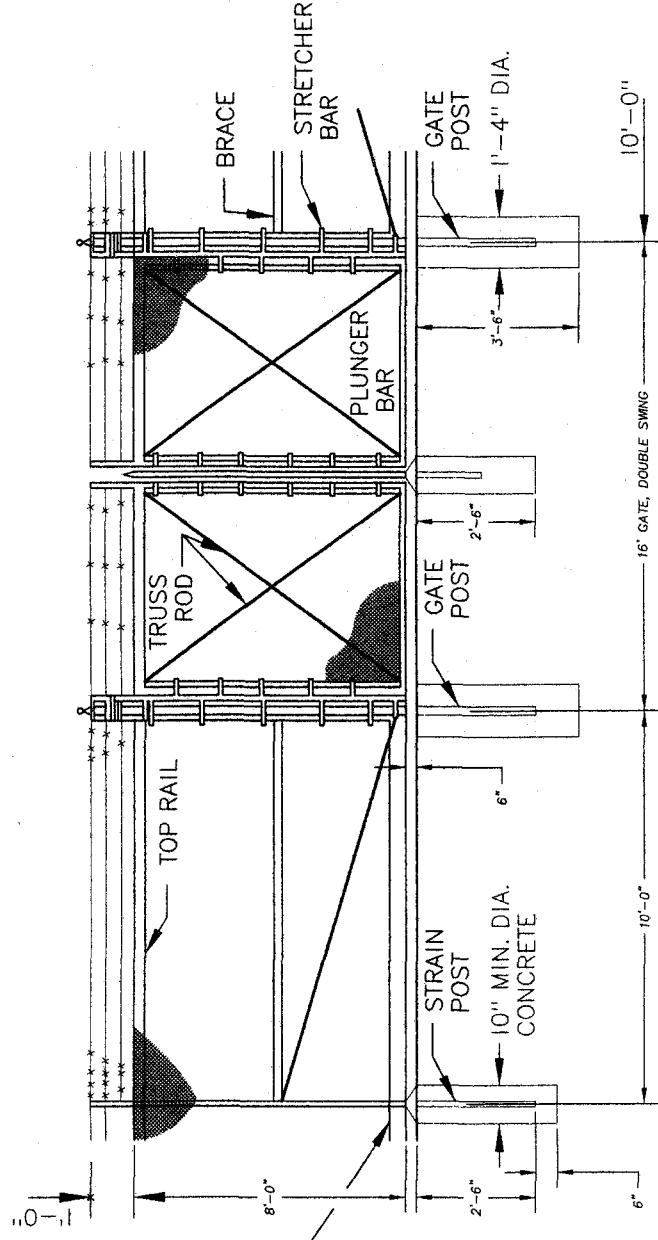


DESIGNED GKX
DRAWN TEAM
CHECKED GB
DATE JULY 2005
SCALE
PROJECT HARDISON #1
FILE NAME 3009B033

[illegible]

SPECIFIC ENGINEERING, LLC.
5230 E SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 596-6335
Fax: (480) 596-6437

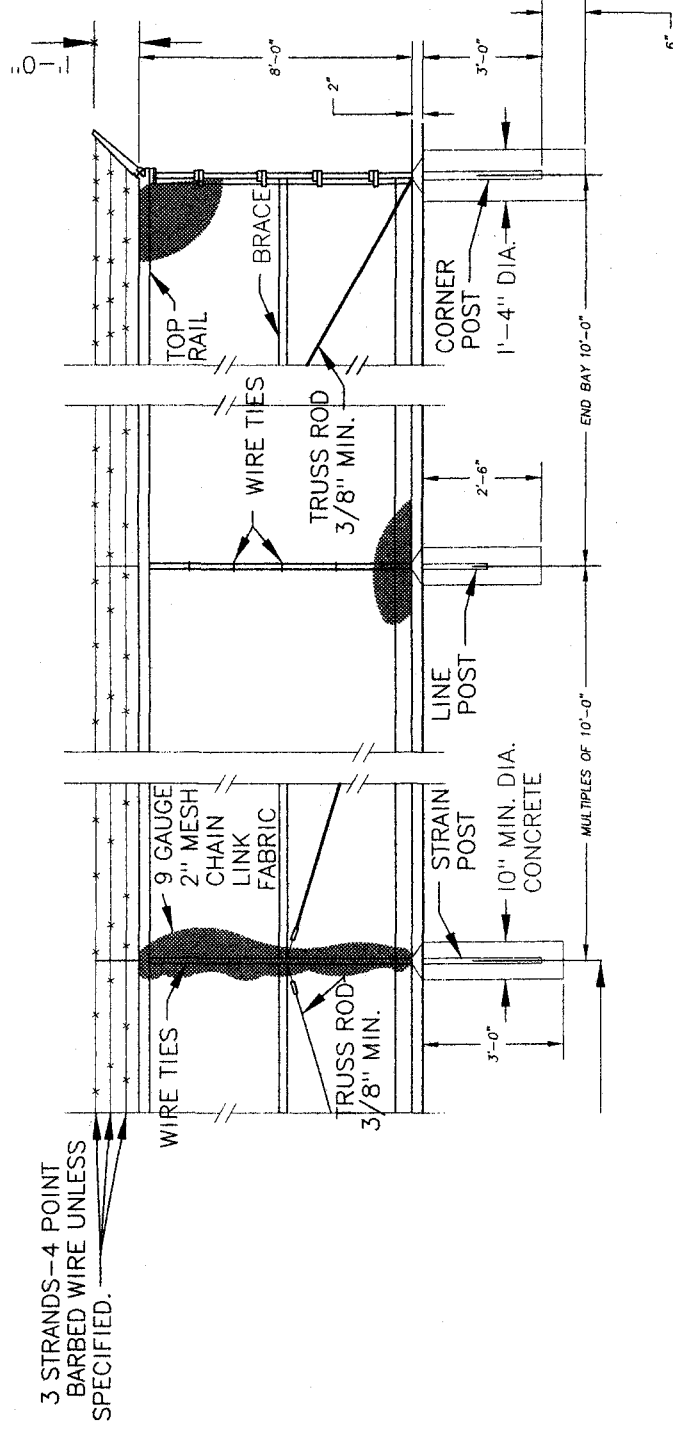




NO. 7 COILED SPRING
REINFORCED WIRE TIE
WITH 12 GAUGE WIRE
OR HOG RING
FASTENERS.
1'-6" C TO C.

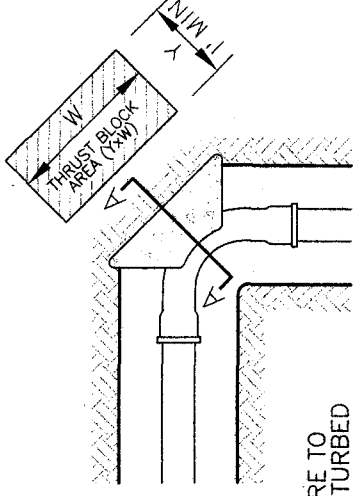
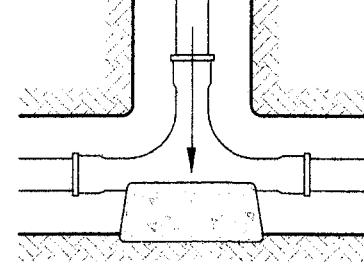
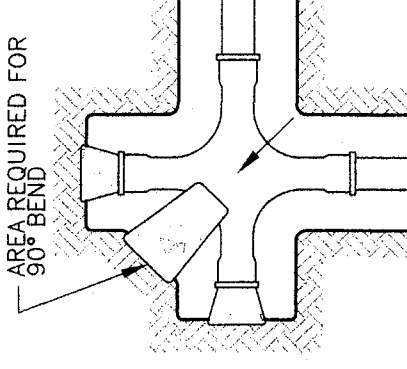
NOTES

1. ALL CONCRETE SHALL BE CLASS 'C' PER SECT. 725.
2. FITTINGS NOT SPECIFICALLY DETAILED SHALL BE APPROVED HEAVY DUTY DESIGN.
3. STRAIN POSTS SHALL BE SPACED AT 500' MAXIMUM INTERVALS.
4. BOTH CORNER AND STRAIN POST SHALL HAVE STRAIN PANELS.
5. ALL POSTS SHALL BE CAPPED.

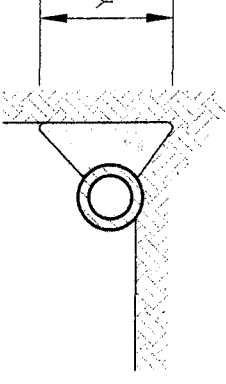


MEMBER	SIZE	WT. PER LF.
1. CORNER POST	2 1/2" I.D. STD. PIPE SCHEDULE 40	5.79
2. LINE POST	1 1/2" I.D. STD. PIPE SCHEDULE 40	2.72
3. STRAIN POST	2 1/2" I.D. STD. PIPE SCHEDULE 40	5.79
4. BRACE	1 1/4" I.D. STD. PIPE SCHEDULE 40	2.27
5. STRETCH BAR	1/4" X 3/4" FLAT	
6. GATE POST	3 1/2" I.D. STD. PIPE SCHEDULE 40	9.11
7. TOP RAIL	1 1/4" I.D. STD. PIPE SCHEDULE 40	2.27

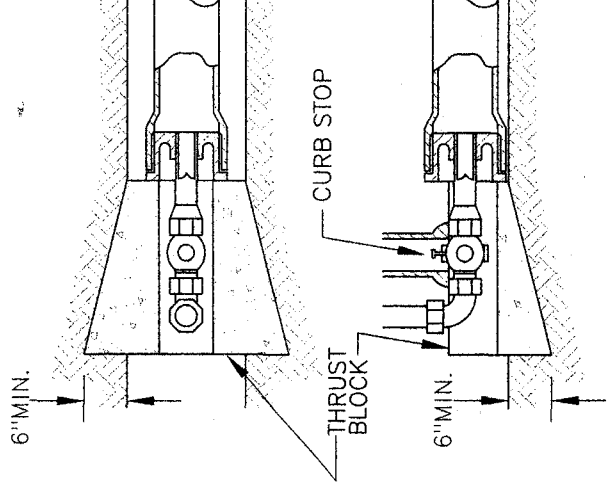
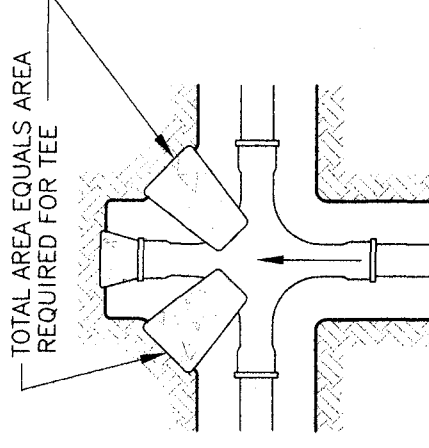
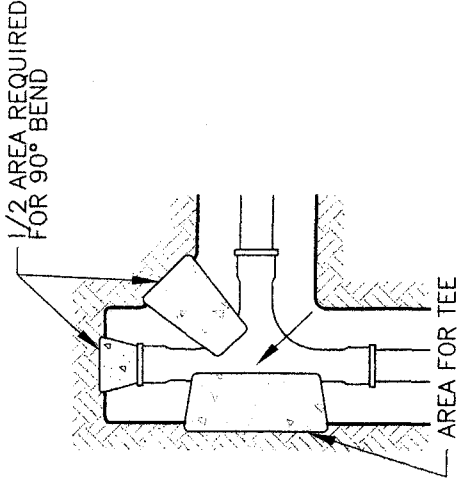
8' CHAIN LINK FENCE & GATE



NOTE: THRUST BLOCKS ARE TO
EXTEND TO UNDISTURBED
GROUND. CONCRETE TO
BE CLASS C, SECT. 725.



SECTION A-A



MINIMUM THRUST BLOCK AREA REQUIRED (YxW)		
PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° & 22 1/2° BENDS
4" & LESS	3 SQ. FEET	3 SQ. FEET
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET
10"	9 SQ. FEET	5 SQ. FEET
12"	13 SQ. FEET	7 SQ. FEET
16"	23 SQ. FEET	12 SQ. FEET

NOTES:

1. TABLE IS BASED ON 3000LBS./SQ. FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPE LARGER THAN 18" SHALL BE CALCULATED FOR EACH PROJECT.
3. FORM ALL NON-BEARING VERTICAL SURFACES.

TYPICAL LOCATION OF THRUST BLOCKS

*AS AN ALTERNATE THRUST RESTRAINT, PIPE JOINTS MAY BE RESTRAINED FOR THE REQUIRED THRUST RESISTANCE DEVELOPMENT LENGTH USING SMITH BLAIR 982 OR SMITH BLAIR 981 PIPE JOINT RESTRAINTS OR APPROVED EQUALS.

THE PROPOSED JOINT RESTRAINT AND THE REQUIRED THRUST RESISTANCE DEVELOPMENT LENGTH CALCULATIONS SHALL BE SUBMITTED TO THE UTILITY'S ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION OF THE WATER MAIN.



Transmittal

To: ADEQ-Water Division
1110 W. Washington
Phoenix, Arizona 85007
ATTN: Helen Fernandez

Date: July 19, 2005

Job No.: 3009B030

Drawing/Spec Reference: _____

Re : Johnson Utility Company-Ellsworth Well No. 1

We Transmit: ☐ Herewith ☐ Under Separate Cover ☒ Via Delivery

Material Format

Requested Action

<input type="checkbox"/> Letter	<input type="checkbox"/> Shop Drawings	<input type="checkbox"/> For Your Approval	<input type="checkbox"/> Your Review
<input type="checkbox"/> Memo	<input type="checkbox"/> Clarification Drawing	<input type="checkbox"/> For Your Signature	<input type="checkbox"/> Please Comment
<input checked="" type="checkbox"/> Prints	<input type="checkbox"/> Modification Drawing	Information	<input type="checkbox"/> Make Recommendation
<input type="checkbox"/> Sketch	<input type="checkbox"/> Specifications	<input type="checkbox"/> Resubmit	<input type="checkbox"/> Issue Construction Order
<input checked="" type="checkbox"/> Reports	Sepias	As Requested	For Your Use
<input type="checkbox"/> Mylars	<input checked="" type="checkbox"/> Application	<input type="checkbox"/> Issue Change Order	<input type="checkbox"/> _____

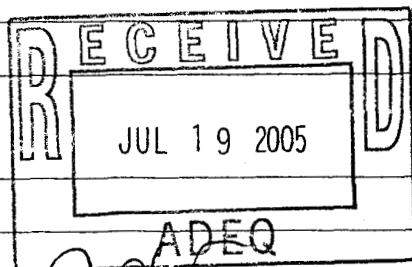
Attached to this transmittal:

Application to Construct water facilities

4 sets of prints for review of the Ellsworth Well No. 1

2 copies of the Design report.

Copies To:



Received By:

Signed: Grant K. Hinderer

Grant Hinderer

Date:

EXHIBIT 3

APPLICATION for APPROVAL TO CONSTRUCT DRINKING WATER FACILITIES

(PLEASE SUBMIT TO THE ADEQ ENGINEERING REVIEW DESK AT 1110 W. WASHINGTON ST., PHOENIX, AZ 85007)

A. PROJECT NAME: Ellsworth Well #1 - 55-627099

B. PROJECT TYPE (Please check all applicable components for the OVERALL PROJECT):

☐ New Drinking Water Well or Source
☒ Water Line and Appurtenances☐ Water Treatment Plant
☐ Other: _____

C. SYSTEM NAME/PUBLIC WATER SYSTEM NUMBER/OPERATIONAL STATUS:

SYSTEM NAME: Johnson Utility Co. SYSTEM NUMBER 11128
☐ New System ☒ Extension to Existing System

D. PROJECT LOCATION (Please provide approximate center. Information is required to accept application):

LATITUDE 33°09'44.8"N LONGITUDE 111°32'55.1"WTOWNSHIP 3S RANGE 8E SECTION 17 QUARTER SECTION (CIRCLE) NE ☒ SW ☐ NW
COUNTY PINALE. PROJECT DESCRIPTION: Well site w/ Access to Bella Vista Road.

F. PROJECT ENGINEER (PLEASE PRINT):

G. PROJECT OWNER (PLEASE PRINT):

NAME	GREGORY BROWN SPECIFIC ENGINEERING, LLC	BRIAN P. TOMPSETT Johnson Utility Co.
ADDRESS	5230 E. Shea, Ste 220 Scottsdale, Ariz 85254	5230 E. Shea, Ste 200 Scottsdale, Ariz 85254
PHONE NO./FAX NO.	<u>[Signature]</u>	<u>[Signature]</u>
SIGNATURE/DATE	480-596-6335 / 480-596-6437	480-998-3300 / 480-483-7908

H. PLAN DOCUMENTS SUBMITTED (PLEASE SEE ADEQ FORM #222, SUBMITTAL GUIDE FOR VARIOUS PROJECT TYPES)

NOTE: INCOMPLETE SUBMITTALS WILL NOT BE LOGGED IN.

J. OWNER/AGENT AGREEMENT AND SCHEDULE: AGREEMENT-The undersigned as Project Owner or as acting Agent for the Project Owner hereby a) grants ADEQ permission to enter the site for inspections; b) authorizes the Project Engineer to prepare and submit plan documents to the ADEQ ENGINEERING REVIEW DESK; and c) agrees to construct the sanitary facilities according to the ADEQ Certificate of Approval and the approved plan documents.

CONSTRUCTION SCHEDULE-Estimated start date: ASAP Estimated completion date: DEC '05
Brian P. Tompsett Johnson Utility Co. [Signature] 7.12.2005
TYPE OR PRINT NAME AFFILIATION SIGNATURE DATE

ADEQ COMPLIANCE EVALUATION:

ADEQ FILE NO: _____

IN-COMPLIANCE: _____

LTF NUMBER: _____

NON-COMPLIANCE: _____

COMMENTS: _____ SITE INSPECTION REQUIRED? ☐ NO ☐ YESIF NECESSARY TO REPRODUCE THIS FORM, DO SO ONLY ON **PLAIN WHITE PAPER**

ADEQ/WQD-114DW (REV. 11/13/02) j:\WEDR\APPLICATIONS-Drinking Water\ApplicationForATC-114DW

JOHNSON UTILITY COMPANY, LLC

**ELLSWORTH WELL NO. 1
CONCEPTUAL DESIGN REPORT**

July 2005

JOHNSON UTILITIES COMPANY
ELLSWORTH WELL NO. 1
CONCEPTUAL DESIGN REPORT

July 2005

PREPARED FOR:

Johnson Utilities, LLC
5230 E. Shea Blvd, Suite 200
Scottsdale, Arizona 85254
Phone: (480) 998-3300
Fax: (480) 483-7908

PREPARED BY:

Specific Engineering, LLC
5230 E. Shea Blvd, Suite 220
Scottsdale, Arizona 85254
Phone: (480) 596-6335
Fax: (480) 596-6437



CONCEPTUAL DESIGN REPORT - TABLE OF CONTENTS

LIST OF SECTIONS

- 1.0 INTRODUCTION
- 2.0 LOCATION
- 3.0 ORIGINAL AGRICULTURAL GROUNDWATER WELL
- 4.0 NEW 8-INCH MAIN
- 5.0 CALCULATIONS

LIST OF FIGURES

- FIGURE 1 VICINITY MAP (PINAL COUNTY)
- FIGURE 2 LOCATION MAP (Ellsworth Well No. 1)
- FIGURE 3 FIMA FLOOD MAP



1.0 INTRODUCTION

This report is intended to document the conceptual design for the proposed water well in the Ranch Bella Vista North development area for the Johnson Utilities Company (the Utility).

Johnson Utilities Company will be the operations manager of the water facility, which is to be operated by a State of Arizona licensed utility operator. The water well is to be connected to the Utility's water distribution system via a 12-inch water line in Bella Vista Road., adding to the system's storage capacity and ability to service the growing community/service area.

Since the service area for the Utility is continually expanding, this design report only addresses the conceptual design of the water facility's proposed improvements and their capabilities. The specific Utility's water system parameters (i.e., area, population, customers, demand, supply, etc.) of the service area will be addressed through other reports and/or studies such as the Master Water Plan for Johnson Utilities Service area.

2.0 LOCATION

The proposed Ellsworth Well No. 1 is located approximately 14 miles Southeast of the Town of Queen Creek in Pinal County, Arizona. See Figure 1.

The facility is to be constructed in the Southeast Quarter of Section 17, Township 3 South, Range 8 East, Gila and Salt River Meridian, Pinal County, Arizona. The facility's site is a proposed 50 ft x 50 ft (0.057 acre) parcel of land north of Bella Vista Road and lies adjacent to Bella vista Road approximately 800 feet west of Gantzel Road
See Figure 2.

3.0 ORIGINAL AGRICULTURAL GROUNDWATER WELL

The existing water well, ADWR registration number 55-627099, is located in the SW1/4, SE1/4, SE1/4, Section 17, T3S, R8E. This well is to be refurbished as a domestic water well by a licensed well driller.

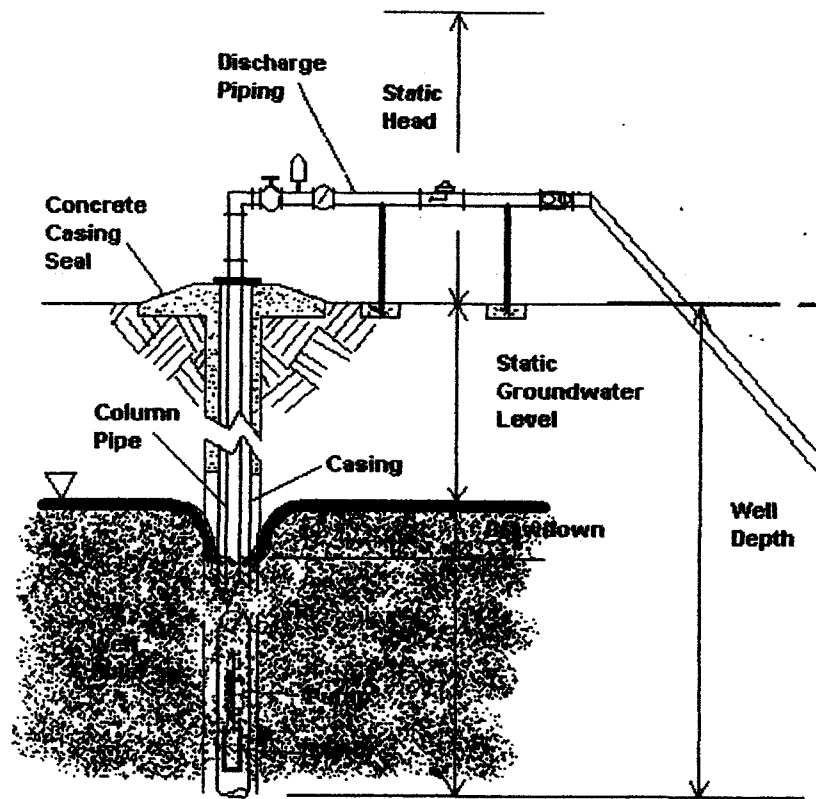
The original well was completed in the 1958 and has been historically used for agricultural purposes. The well has a vertical turbine pump, with a motor mounted on top of the well casing, and is capable of pumping 1800gpm. The well is 866' deep and has a 20" casing. The well is located in zone C which is an area of minimal flooding as shown on the attached FEMA map, Panel Number 040077 0500 C. The site is outside of the 100-year and 500-year floods.

4.0 NEW 8-INCH MAIN

The new Ellsworth Well No. 1 will supply water directly to the Johnson Utilities Company water transmission distribution system. A water supply transmission main will be installed from Ellsworth Well No. 1 to the existing 12-inch water line in Bella Vista Road.

5.0 CALCULATIONS

5.1 Source Well Calculations



1000 gpm Source Well

WELL PUMP DESIGN PARAMETERS (*initial conditions)

depth to groundwater = 500 feet (assumed average for Johnson Utility Service area)

well drawdown = 50 feet (assumed)

static head = -4 feet

line pressure = 184 ft (80 psi)

well/pump/casing depth = 866 feet (assumed)

well casing = 20 inches

column pipe = 8 inches

discharge piping = 8 inches

- pump and motor are to be enlarged in the future as the aquifer water level drops.

5.0 CALCULATIONS cont'd

5.1 Source Well Calculations cont'd

WELL PUMP DESIGN PARAMETERS cont'd

column & discharge piping headloss (H_L)

(8" pipe, flow $Q = 1,000$ gpm, velocity $V = 6.38$ fps)

<u>Item</u>	<u>Qty</u>	<u>K</u>	<u>H_L</u>
Aquifer contraction	1	0.5	0.32'
8"x4" Tee	1	0.3	0.19'
8" butterfly valve	1	0.2	0.13'
8" check valve	1	2.5	1.58'
8"-90° bend	4	0.7	1.77'
8"-45° bend	2	0.2	0.25'
8" flow meter	1		0.25'
3/4" taps	2	0.3	0.38'
8" expansion joint	1	0.4	0.25'
			4.88
8" pipe	180 LF		2.44
Total H_L			7.32

Total dynamic head (TDH)

total static head = $500 - 4 = 496$ feet

friction head = 7.32 feet

Line pressure = 184 feet

Velocity head = 0.62 ft

TDH = 688 feet

NET POSITIVE SUCTION HEAD (NPSH) AVAILABLE:

For safety: $NPSH_a > NPSH_r + 2$ feet

$$*NPSH_a = Y - H_L - (P_v / \gamma) = 307 \text{ ft}$$

where: suction head $Y = 866 - (500 + 50) = 316$ ft

pipe headloss from aquifer contraction = $H_L = 0.32$ ft

water vapor pressure $P_v = 49.21$ psf @ 20°C or 68°F

specific weight of water $\gamma = 62.32$ pcf @ 20°C or 68°F

* Atmospheric pressure and soil pressure ignored. Velocity head assumed to be in the pump's $NPSH_r$.

Cavitation will occur when the pressure at any location in a closed system reaches an absolute pressure equal to the saturated vapor pressure of the fluid at the fluid's pumping temperature.

5.0 CALCULATIONS cont'd

5.1 Source Well Calculations cont'd

WELL PUMP (see attached pump curve)

capacity = 1000 gpm

type = Goulds Pumps Model VIS, 3550 rpm, closed 7.96" impeller

size = 11 AHC

stages = 3 stages

horsepower = 223 Hp

first stage NPSH required = 35.8ft < 307 ft available

pump efficiency = 78 % with 3 stages

Water Vapor Pressure

°F	°C	Pounds per Square Inch	Pounds per Square Foot	Feet of Head
40	4.4	0.1217	17.52	0.281
50	10	0.1781	25.65	0.412
60	15.6	0.2563	36.91	0.592
70	21.1	0.3631	52.29	0.815
80	26.7	0.5069	72.99	1.17
86	30	0.6155	88.63	1.42
90	32.2	0.6982	100.5	1.61
100	37.8	0.9492	136.7	2.19
110	43.3	1.275	183.6	2.94
120	48.9	1.692	243.6	3.91
130	54.4	2.223	320.1	5.14
140	60	2.889	416.0	6.68
150	65.6	3.718	535.4	8.56
160	71.1	4.741	682.7	10.95
170	76.7	5.992	862.8	13.84

5.0 CALCULATIONS (cont'd)

5.1 Source Well Calculations cont'd

Density & Specific Weight of Water at Various Temperatures

		Density (ρ) grams per cubic centimeter	
°C	°F		
0 (solid)	32	0.9150	57.12
0 (liquid)	32	0.9997	62.41
4	39.2	1.0000	62.43
5	41	1.0000	62.43
10	50	0.9997	62.41
15	59	0.9992	62.38
16	60.8	0.9991	62.37
17	62.6	0.9989	62.36
18	64.4	0.9988	62.35
19	66.2	0.9985	62.33
21	69.8	0.9981	62.31
22	71.6	0.9978	62.29
23	73.4	0.9976	62.28
24	75.2	0.9974	62.27
25	77	0.9972	62.25
30	86	0.9957	62.16
35	95	0.9941	62.06
40	104	0.9923	61.94
45	113	0.9903	61.82
50	122	0.9881	61.68
60	140	0.9832	61.38
70	158	0.9777	61.04
80	176	0.9719	60.67
90	194	0.9651	60.25
100 (liquid)	212	0.9581	59.81
100 (gas)	212	0.0006	0.04

5.0 CALCULATIONS (cont'd)

5.2 Serviceable Development Calculations

SOURCE WATER WELL & WATER STORAGE TANK CAPACITY

Average Daily Residential Demand

Source Well Flow $Q_{sw} = 1000 \text{ gpm or } 1,440,000 \text{ gpd}$

Serviceable population = $1,440,000 \text{ gpd} / 100 \text{ gpdpc} = 14,400 \text{ people}$

Serviceable residences = $14,400 / 2.6 = 5,538 \text{ residences}$

The storage tanks at Circle Cross water plant, San Tan water storage tank, and the main water plant at Johnson Ranch supply the fire flow for this area.

Model:VIT/VIC/VIS**Size:11AHC****Group:****60Hz****RPM:3550****Stages:3**

Job/Inqu. No.

Purchaser:

User:

Item/Equip.No:

Service:

Issued by: greg brown

Quotation No.

Order No.

Date: 7/18/05

Certified By:

Operating Conditions

Liquid: Water
Temp.: 70 °F
Sp. Heat:
S.G./Visc.: 1/1 cp
Flow: 1000 gpm(US)
TDH: 688 ft
NPSHa: 350 ft
Req. solid size:
% Solids:
Vapor Press:

Pump Performance

Actual Pump Eff.: 77.9 %
Actual Pump Power: 222.9 hp
Mech. Seal Loss: 0 hp
Dyn. Seal Loss: 0 hp
Other Power Loss: 0 hp
Rated Total Power: 222.9 hp
Imp. Dia. First 3 Stg: 7.96 in
NPSHr: 35.8 ft
Shut off Head: 934.4 ft
Max. Solids Size: 0.5 in
Suction Specific Speed: 8400 (gpm(US) , ft)
Min. Cont. Stable Flow: 249 gpm(US)
Min. Cont. Thermal Flow:
Non-Overloading Power: 239.4 hp
Imp. Dia. Add'l Stg
Mag. Drive Circuit Flow:
Max Drive Power:
Max Drive Temp:
Max Motor Size:

Notes: 1. The Mechanical seal increased drag effect on power and efficiency is not included, unless the correction is shown in the appropriate field above. 2. Magnetic drive eddy current and viscous effect on power and efficiency is not included. 3. Elevated temperature effects on performance are not included.

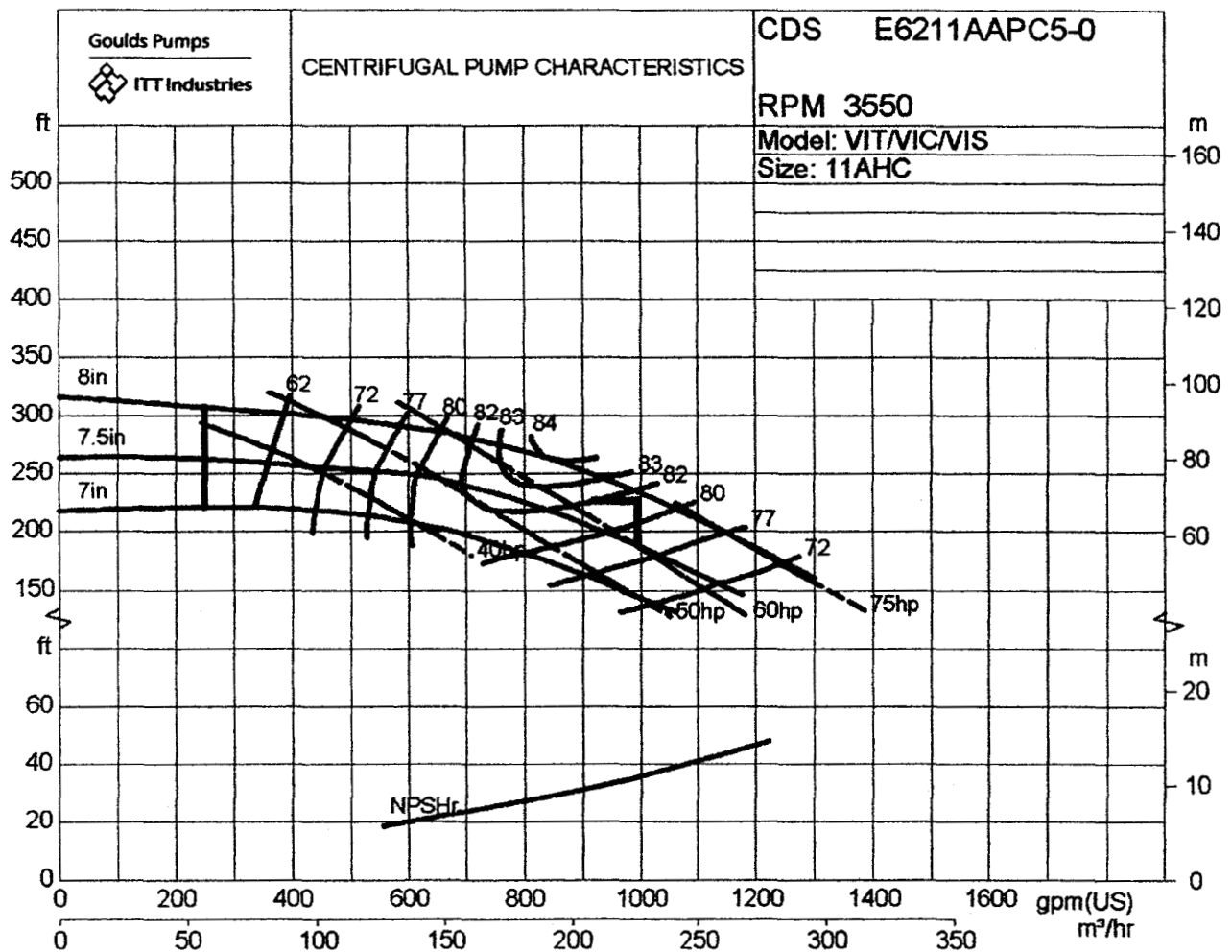
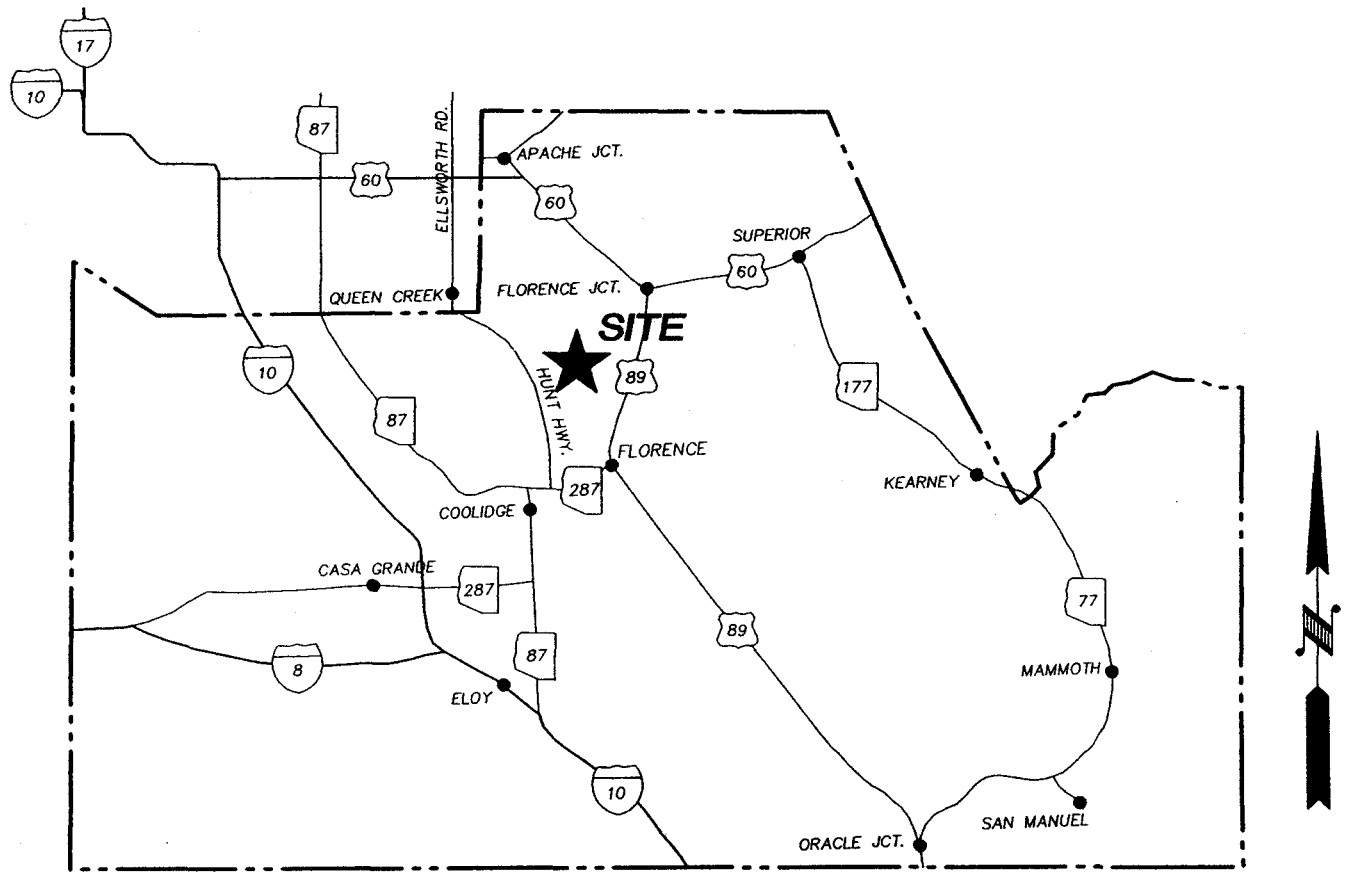


FIGURE 1



VICINITY MAP

N.T.S.

ELLSWORTH WELL #1
VICINITY MAP

DRAWN RSW
DATE 7/2005
SCALE N.T.S.



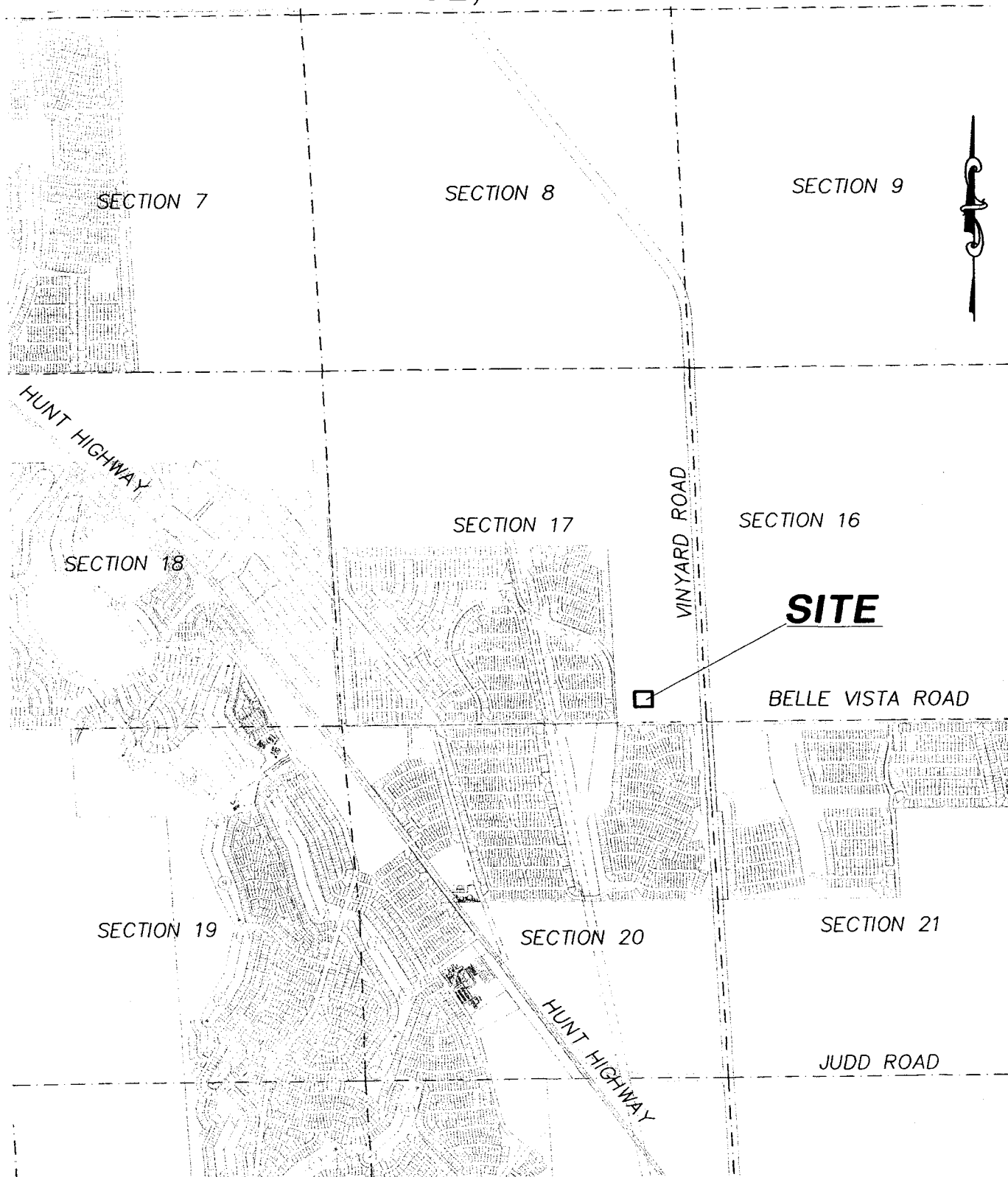
SPECIFIC ENGINEERING, LLC.

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 596-6335
FAX: (480) 596-6437



T3E, R8E

FIGURE 2



ELLSWORTH WELL #1
LOCATION MAP

DRAWN RSW
DATE 7/2005
SCALE N.T.S.



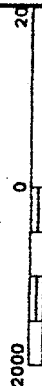
SPECIFIC ENGINEERING, LLC.

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 596-6335
FAX: (480) 596-6437





APPROXIMATE SCALE



INS PANEL 0300

18

17

16

Site

20

21

0

19

KUNT

ZONE A

ONE C

20

30

29

28

HIGHWAY

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

PINAL COUNTY,
ARIZONA
(UNINCORPORATED AREAS)

PANEL 500 OF 1525
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
040077 0500 C

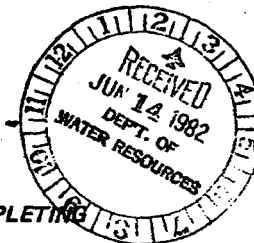
EFFECTIVE DATE
AUGUST 15, 1983



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

DEPARTMENT OF WATER RESOURCES

22 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004

REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)

EXEMPT WELL (NO CHARGE) ☐NON-EXEMPT WELL - \$10.00 ☒

FOR OFFICE USE ONLY

REGISTRATION NO. 627099

FILE NO. D(3-8)17ddc

FILED 6-14-82 AT 3:45p
(DATE) (TIME)

INA _____

AMA PHOENIX

1. Name of Registrant:

Ellsworth Land & Livestock, Inc.P.O. Box 369
(Address)Queen Creek,
(City)Az.
(State)85212
(Zip)

2. File and/or Control Number under previous groundwater law:

D(3-8)17 ddc
(File Number)35-
(Control Number)

3. a. The well is located within the SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 17
of Township 3 South N/S. Range 8 East EW, G & SRB & M, in the
County of Pinal

b. If in a subdivision: Name of subdivision _____

Lot No. _____ Address _____

4. The principal use(s) of water (Examples: Irrigation - stockwater - domestic - municipal - industrial)
IRRIGATION

5. If for irrigation use, number of acres irrigated from well 690

6. Owner of land on which well is located. If same as Item 1, check this box ☒

(Address)

(City)

(State)

(Zip)

7. Well data (If data not available, write N/A)

- a. Depth of Well 866 feet
- b. Diameter of casing 20 inches
- c. Depth of casing 866 feet
- d. Type of casing "K&L-well"
- e. Maximum pump capacity 7150 gallons per minute.
- f. Depth to water 500 feet below land surface.
- g. Date well completed 1/24/58
(Month) (Day) (Year)

8. The place(s) of use of water. If same as Item 3, check this box ☒

1/4 $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____
1/4 $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____

Attach additional sheet if necessary.

9. DATE 6/14/82 SIGNATURE OF REGISTRANT

Bruce M. Ormsby
Vice-President

MICROFILMED

Ellsworth Land & Livestock
P O Box 369
Queen Creek AZ 85242

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER RIGHTS ADMINISTRATION
99 EAST VIRGINIA
PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55 -	627081
	THRU
55 -	627117

FOR: ELLSWORTH & ORMSBY
ELLSWORTH LAND & LIVESTOCK INC

FUND SOURCE	ACCOUNT NO.			INT. ACCT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
	AGENCY	CHAPTER	DIV.				
					Filing Fee for Registration of Existing Wells	10.00	370.00
					File #		
					A(8-22)1aba D(3-8)16dab D(3-8)27aaa		
					A(14-14)2odd D(3-8)17cha D(3-8)27aba		
					D(2-7)16daa D(3-8)17dab D(3-8)27bab		
					D(2-7)21aaa D(3-8)17dab D(3-8)27bab		
					D(2-7)21aaa D(3-8)20boc D(3-8)34aaa		
					D(2-7)24dad D(3-8)20coc D(3-8)35baa		
					D(2-8)26boc D(3-8)21baa		
					D(2-8)27ada D(3-8)21boc		
					D(2-8)27dad D(3-8)21boc		
					D(2-8)27ada D(3-8)21boc		
					D(2-8)34aad D(3-8)25aaa		
					D(3-8)35boc D(3-8)26aaa		
					D(3-8)11aaa D(3-8)26aca		

WRITER PAYMENT
GUESTS 37
CHK NO 10257
55-I 370.00
TAX 0.00
TOTL 370.00
GEN.CHEK 370.00

4445 A 13:44

Paid Check #10257 11-17-82 pb

TOTAL

\$ 370.00

WATER AND SEWER ABBREVIATIONS

C	CENTER LINE
M	MONUMENT LINE
PI	POINT OF INTERSECTION
PIV	POINT OF VERTICAL INTERSECTION
LT	LEFT
RT	RIGHT
STA	STATION
Δ	DELTA, ANGLE
R/W	RIGHT OF WAY
PUE	PUBLIC UTILITY EASEMENT
DE	DRAINAGE EASEMENT
LE	LANDSCAPE EASEMENT
NA	NOT APPLICABLE
NTS	NOT TO SCALE
ELEV	ELEVATION
PVC	POLYVINYL CHLORIDE
DIP	DUCTILE IRON PIPE
B & C	BOX AND COVER
FH	FIRE HYDRANT
WH	WATER VALVE
MH	MANHOLE
CO	CLEANOUT
PP	POWER POLE
DVA	DRAIN VALVE ASSEMBLY
ARV	AIR RELEASE VALVE
FM	FORCE MAIN

LEGEND

ⓐ	DETAIL LETTER
5	SHEET NUMBER
---	EXISTING CONTOUR
1512	NEW CONTOUR
---	EXISTING EDGE OF PAVEMENT
---	NEW EDGE OF PAVEMENT
---	NEW GRADE DITCH
---	FLOWLINE DIRECTION
---	NEW FENCE
---	NEW SPIRAL RIB PIPE
---	NEW UNDERGROUND WATER PIPE
---	NEW ABOVEGROUND WATER PIPE
---	EXISTING WATER PIPE
SECTION A	
11	SHEET 11

OWNER

JOHNSON UTILITIES COMPANY
5230 East Shea Blvd. Suite 200
Scottsdale, Arizona 85254
PH: (480) 998-3300
FAX: (480) 483-7908

ENGINEER

SPECIFIC ENGINEERING, LLC
5230 East Shea Blvd. Suite 220
Scottsdale, Arizona 85254
PH: (480) 598-6335
FAX: (480) 598-6437

BENCH MARK

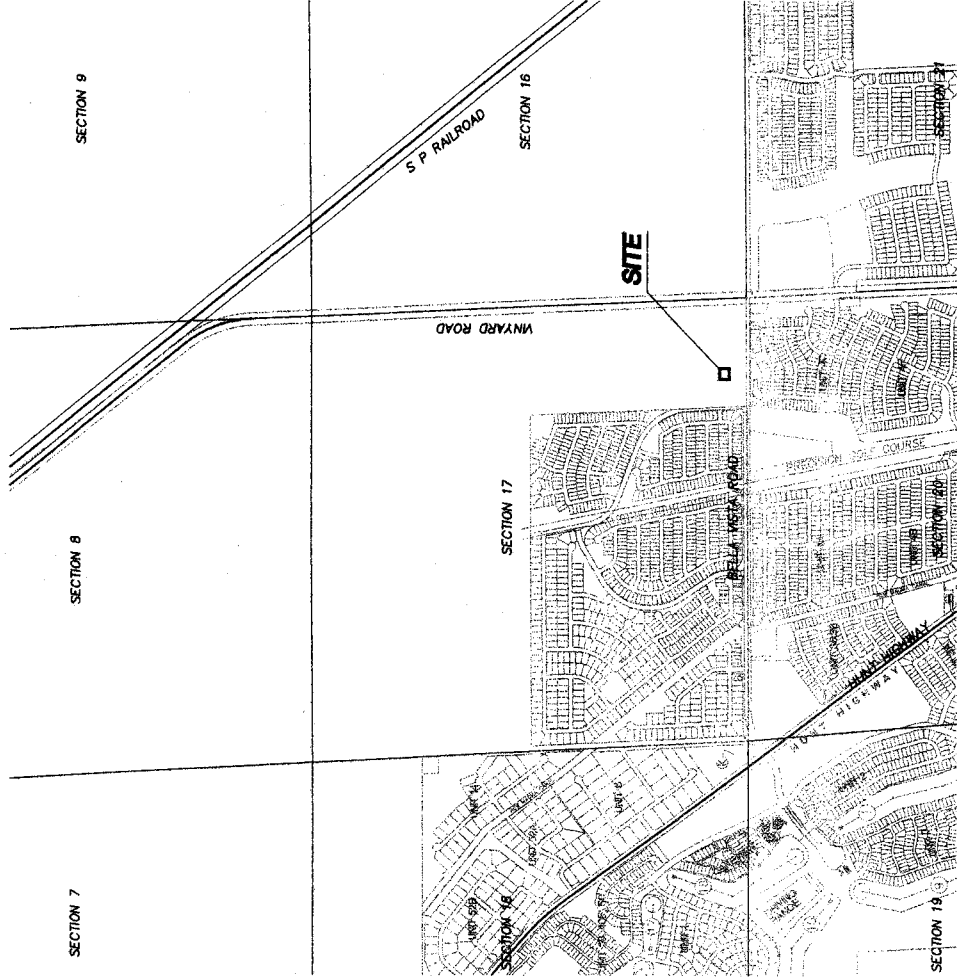
NATIONAL GEODETIC SURVEY CONTROL POINT DESIGNATED J 68, P.L.D. DU0673 - USGS QUAD: SACATON NE, ELEVATION=1480.20 FEET NAVD 88 DATUM. BENCHMARK DISK SET IN TO OF CONCRETE MONUMENT STAMPED J 68 1934. LOCATED 0.2 KM (0.10 MI) NORTHERLY ALONG ELLSWORTH ROAD FROM THE POST OFFICE IN QUEEN CREEK, THENCE 1.2 KM (0.75 MI) EASTERLY ALONG OCTILLO ROAD, THENCE 8.0 KM (4.95 MI) SOUTHEASTERLY ALONG THE UNION PACIFIC RAILROAD, 84.1 M (271.9 FT) NORTHWEST OF MILEPOST 944, 38.2 M (123.5 FT) SOUTHEAST OF A UTILITY POLE, 23.1 M (75.8 FT) NORTHWEST OF A UTILITY POLE, 15.9 M (52.2 FT) NORTHEAST OF AND LEVEL WITH THE CENTER OF A DIRT ROAD, 1.1 M (3.6 FT) WEST OF A WITNESS POST, AND THE MONUMENT PROJECTS 0.05 M (0.16 FT) ABOVE THE GROUND SURFACE. IN SECTION 6, 13S, R8E.

BASIS OF BEARINGS

NORTH LINE OF THE NORTH EAST QUARTER
SECTION 20, T-3S, R-8E WITH THE
ASSUMED BEARING OF N89°35'01"E

ELLSWORTH WELL #1

A PORTION OF SECTION 17, TOWNSHIP 3 SOUTH, RANGE 8 EAST,
GILA AND SALT RIVER MERIDIAN,
PINAL COUNTY, ARIZONA



VICINITY MAP

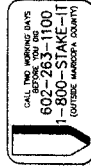
N.T.S.

INDEX OF SHEETS

1. COVER SHEET
2. WATER NOTES/DETAILS
3. GENERAL NOTES AND DETAILS
4. SITE PLAN
5. WELL NOTES & DETAILS
6. DETAILS
7. ELECTRIC DETAILS
8. FENCE DETAILS
9. THRUST BLOCK DETAILS

ACCEPTED

PINAL COUNTY	DATE
ADEQ	DATE
JOHNSON UTILITY COMPANY	DATE



SPECIFIC ENGINEERING, LLC
5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 598-6335
Fax: (480) 598-6437



NO.	DATE	APP.	DESCRIPTION
DESIGNED GKH			
DRAWN TEAM			
CHECKED GB			
DATE	JULY 2005		
SCALE			
PROJECT	ELLSWORTH #1		
FILE NAME	3009BQ30		



ELLSWORTH WELL #1

COVER SHEET

CLIENT/PROJECT
TITLE

SHEET
1 OF 9

1. MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION) AND THE JOHNSON UTILITIES COMPANY (JUC) DESIGN GUIDE AND STANDARD DETAILS ARE INCORPORATED INTO THESE PLANS IN THEIR ENTIRETY.

[illegible]

18. IN ADDITION TO UTILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE AND PROTECTION OF ALL EXISTING PUBLIC AND PRIVATE IMPROVEMENTS IN THE WORK AREA. IMPROVEMENTS THAT HAVE BEEN REPAIRED OR DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED, INCLUDING CLEANUP, TO THE SATISFACTION OF THE CONTRACTING PARTY. AT THE CONTRACTOR'S SOLE EXPENSE, THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES, APPURTENANCES AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO, OR NECESSARY FOR, A SOUND, SECURE, COMPLETE, FUNCTIONAL AND ACCEPTABLE INSTALLATION, AT NO ADDITIONAL COST TO THE CONTRACTING PARTY.

19. REINFORCING STEEL SHALL BE CLASS "A" AND REINFORCING STEEL SHALL BE GRADE 40 CONCRETE, UNLESS OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS.

20. ALL PRIMARY PARTIES HAVING INTEREST IN THE WORK COVERED BY THESE PLANS SHALL EXECUTE ALL CONTRACTS AND AGREEMENTS BETWEEN THE PARTIES PRIOR TO COMMENCING CONSTRUCTION. PRIMARY PARTIES INCLUDE, BUT ARE NOT LIMITED TO, THE CONTRACTING PARTY, THE CONTRACTOR, THE ULTIMATE OWNER OF THE ACCEPTED IMPROVEMENTS, THE INSPECTING ENGINEER AND THE TESTING ENGINEER.

21. THE CONTRACTING PARTY OR THE CONTRACTOR SHALL PAY FOR ALL INSPECTIONS, FEES AND TESTING FEES. ALL FEES ARE TO BE PAID IN FULL, AS EVIDENCED BY SIGNED RELEASES, PRIOR TO THE ULTIMATE OWNER'S PARTIAL OR FINAL ACCEPTANCE OF ANY IMPROVEMENTS COVERED BY THESE PLANS.

22. WORK COVERED BY THESE PLANS SHALL ALSO BE TESTED BY A REGISTERED PROFESSIONAL ENGINEER. WORK SHALL BE INSPECTED BY A DESIGNATING LABORATORY, PRIOR TO PARTIAL OR FINAL ACCEPTANCE OF THE IMPROVEMENTS. THE CONTRACTOR SHALL CERTIFY THAT THE DESIGN PARTY, THE ENGINEER AND TESTING LABORATORY SHALL CERTIFY THAT THE WORK IS SATISFACTORILY INSPECTED AND TESTED; AND, THAT THE WORK PERFORMED IS ACCEPTABLE. THE CERTIFICATION BY THE ENGINEER AND/OR THE TESTING LABORATORY DOES NOT RELIEVE THE CONTRACTOR FROM ANY GUARANTEES OR WARRANTIES AS SPECIFIED IN MAG SECTION 10B.8.

23. IF THE CONTRACTOR ENCOUNTERS UNANTICIPATED CONDITIONS DURING CONSTRUCTION, HE SHALL IMMEDIATELY NOTIFY THE DESIGN PARTY AND THE DESIGN PARTY SHALL BE THE DETERMINER OF THE SCOPE OF THE ENGINEER'S ORIGINAL DESIGN. FOR THESE PLANS, THE DESIGN PARTY SHALL BE THE DETERMINER OF ANY SUPPLEMENTAL IMPROVEMENT PLANS AND APPROVAL.

24. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE AND ALL CONSTRUCTION ACTIVITIES COVERED UNDER THESE PLANS SO AS TO PREVENT DISPERSAL OF CONSTRUCTION MATERIALS, EQUIPMENT FLUIDS OR CONTAMINATES. FURTHERMORE, THE CONTRACTOR SHALL CONDUCT HIS/HER OPERATIONS OF EQUIPMENT MAINTENANCE ACTIVITIES SUCH THAT THEY WILL NOT RESULT IN THE SPILL OF OIL OR GREASY SUBSTANCES ON THE SITE OR INTO DRAINAGE DITCHES OR STORM DRAINAGE.

25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DELAYS DUE TO DAMAGE TO UTILITIES CAUSED BY CONTRACTOR'S CONSTRUCTION ACTIVITIES.

26. ALL PEDESTRIAN PATHWAYS/SIDEWALKS ARE TO MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA). SHOULD THE WORK COVERED BY THESE PLANS NOT MEET ADA REQUIREMENTS, THE CONTRACTOR IS TO CEASE WORK IN THE AREA OF CONCERN AND CONTACT THE ENGINEER FOR DIRECTION. SOME ADA REQUIREMENTS ARE: A) MAXIMUM CROSS SLOPE IS 2% B) MAXIMUM LONGITUDINAL SLOPE IS 5% C) MAXIMUM RAMP SLOPE IS 8.33% D) MAXIMUM FLARED RAMP SIDE SLOPE IS 10% E) LEVEL LANDINGS ARE REQUIRED AT THE BOTTOM AND TOP OF RAMPS.

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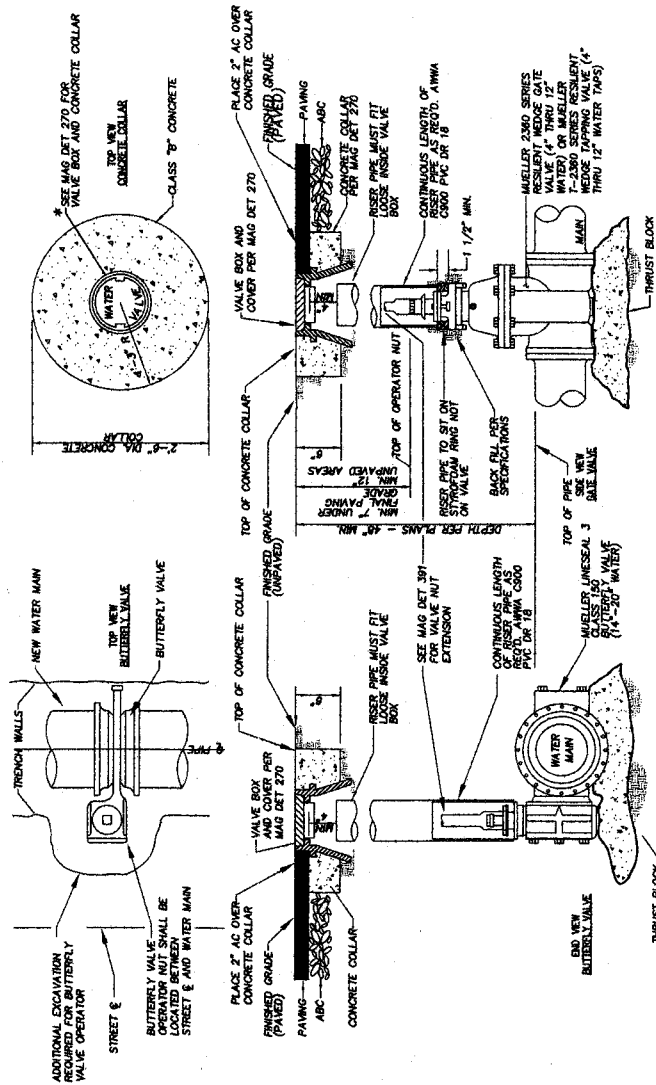
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A VALVE AND VALVE BOX INSTALLATION DETAIL

(OR APPROVED EQUAL,
N T C

[illegible]

ELLSWORTH WELL #1

CLIENT/PROJECT

SHEET
3 OF 9

CLIENT/PROJECT

CALL TWO WARDING DAYS
BEFORE THE START OF WORK
602-268-1100
1-800-STAKE-1
(OUTSIDE MARICOPA COUNTY)



PROJECT ELLSWORTH #1
FILE NAME 3009B03D

SCALE JULY 2005

CHECKED GB

DRAWN TEAM

DESIGNED GKH

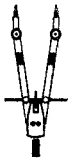
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DATE

APP.

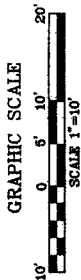
DESCRIPTION

REVISIONS



5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 596-6335
Fax: (480) 596-6437

SPECIFIC ENGINEERING, LLC

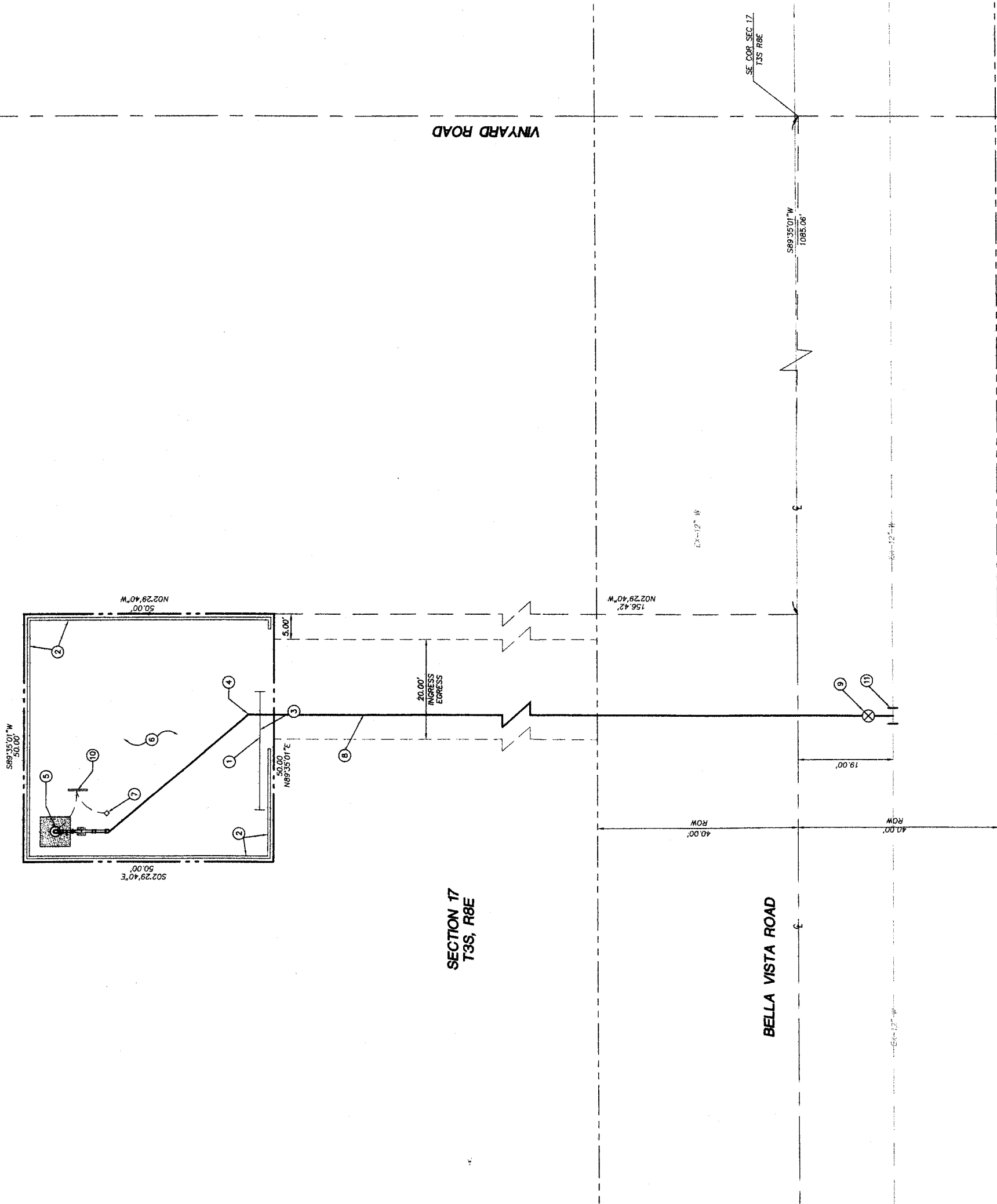


NOTES:

1. ALL SITE ELECTRICAL WORK IS TO BE PERFORMED BY LICENSED ELECTRICIAN AND INSTALLED PER EQUIPMENT MANUFACTURERS' RECOMMENDATIONS.
2. WATERLINE SHALL HAVE THRUST BLOCKING OR JOINT RESTRAINTS FOR THE ENTIRE THRUST RESTRAINT LENGTH AS REQUIRED AT ALL FITTINGS FOR 150 PSI TEST PRESSURE

CONSTRUCTION NOTES:

1. INSTALL 24" SLIDING GATE
2. INSTALL CMU WALLS
3. INSTALL SIGN ON FENCE GATE
4. INSTALL 8" 45° BEND
5. INSTALL WELL (A 5)
6. INSTALL CRUSHED ROCK OR APPROVED EQUAL
7. INSTALL YARD LIGHT (A 7)
8. INSTALL 218 ± LF 8" C900 DR14 PVC WATERLINE
9. INSTALL 8" WATER VALVE
10. INSTALL ELECTRICAL SERVICE PANEL
11. 12" X 8" TAPPING SLEEVE AND VALVE



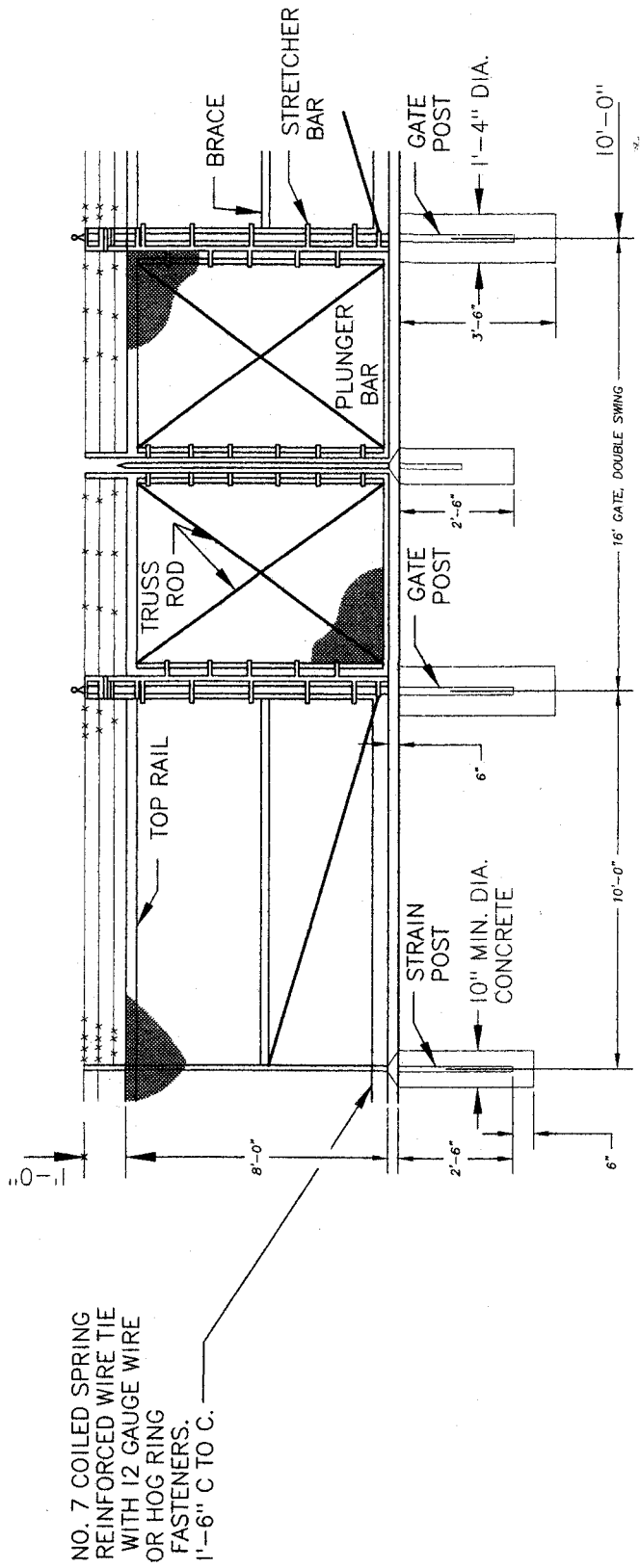
- 1 SCHEDULE 40 STEEL (FLG X MNPT) WELL COLUMN PIPING
- 2 90° BEND (FLG X FLG)
- 3 BUTTERFLY VALVE (FLG X FLG) MUELLER "LINESEAL III"
(CLASS 150) OR APPROVED EQUAL
- 4 CLASS 350 DIP (FLG X FLG) WELL DISCHARGE PIPING
- 5 3/4" FNPT SERVICE SADDLE
- 6 1/2" FNPT SERVICE SADDLE
- 7 1/2" NPT SAMPLING HOSE BIBB WITH SMOOTH NOSE OUTLET
(150 PSI WORKING PRESSURE)
- 8 3/4" FNPT AIR RELEASE VALVE VAL-MATIC MODEL 22.4 OR APPROVED
EQUAL (175 PSI WORKING PRESSURE)
- 9 BOLT-ON SADDLE FLOW METER WITH TOTALIZER (150 PSI WORKING
PRESSURE-UP TO 1500 GPM RANGE) MACROMETER MACROPPELLER
MODEL MO.300 OR APPROVED EQUAL
- 10 WATER STYLE SILENT CHECK VALVE VAL-MATIC 1400 SERIES OR
APPROVED EQUAL WITH NECESSARY BOLTS, NUTS AND GASKETS.
- 11 45° BEND (FLG X FLG)
- 12 CLASS 350 DIP (FLG X FE) WELL DISCHARGE PIPING
- 13 45° IRON BEND (PUSH ON JOINTS).
- 14 C900 PVC WELL DISCHARGE PIPE
- 15 STEEL WELL HEAD TEE WITH PLUG (WELDED TO CASING COVER)
- 16 STEEL CASING COVER (WELDED TO CASING)
- 17 1" GALV. STEEL VENT PIPE & FITTINGS
- 18 SCHEDULE 40 STEEL COLUMN PIPE WITH NPT COUPLING JOINTS
- 19 SOLID WALL STEEL WELL CASING PIPE WITH WELDED JOINTS
- 20 SLOTTED WALL STEEL WELL CASING PIPE WITH WELDED JOINTS
- 21 MAG 776 CONCRETE COARSE GROUT CASING SEAL AND WELL CAP
(2500 PSI)
- 22 SUBMERSIBLE TURBINE WELL PUMP
- 23 SUBMERSIBLE PUMP MOTOR
- 24 SUBMERSIBLE ELECTRIC CABLE
- 25 ELECTRIC CONDUIT AND WIRING FROM PUMP MOTOR TO WELL PUMP
CONTROL PANEL
- 26 PIPE SUPPORT
- 27 THRUST BLOCKING PER MAG STDS (OR APPROVED JOINT RESTRAINTS)

[illegible]

1. WELL PUMP IS TO BE ACTIVATED/ DEACTIVATED AUTOMATICALLY FROM REMOTE WATER LEVEL SENSORS AND CONTROLS AT WATER STORAGE TANK.
2. WELL DRILLER IS TO FINALIZE PUMP, MOTOR, CASING AND COLUMN PIPE SELECTION AFTER HE/SHE HAS DETERMINED THE AQUIFER STATIC WATER LEVEL AND THE DRAW DOWN WATER LEVEL. CORRECT DATA TABLE IF NECESSARY.



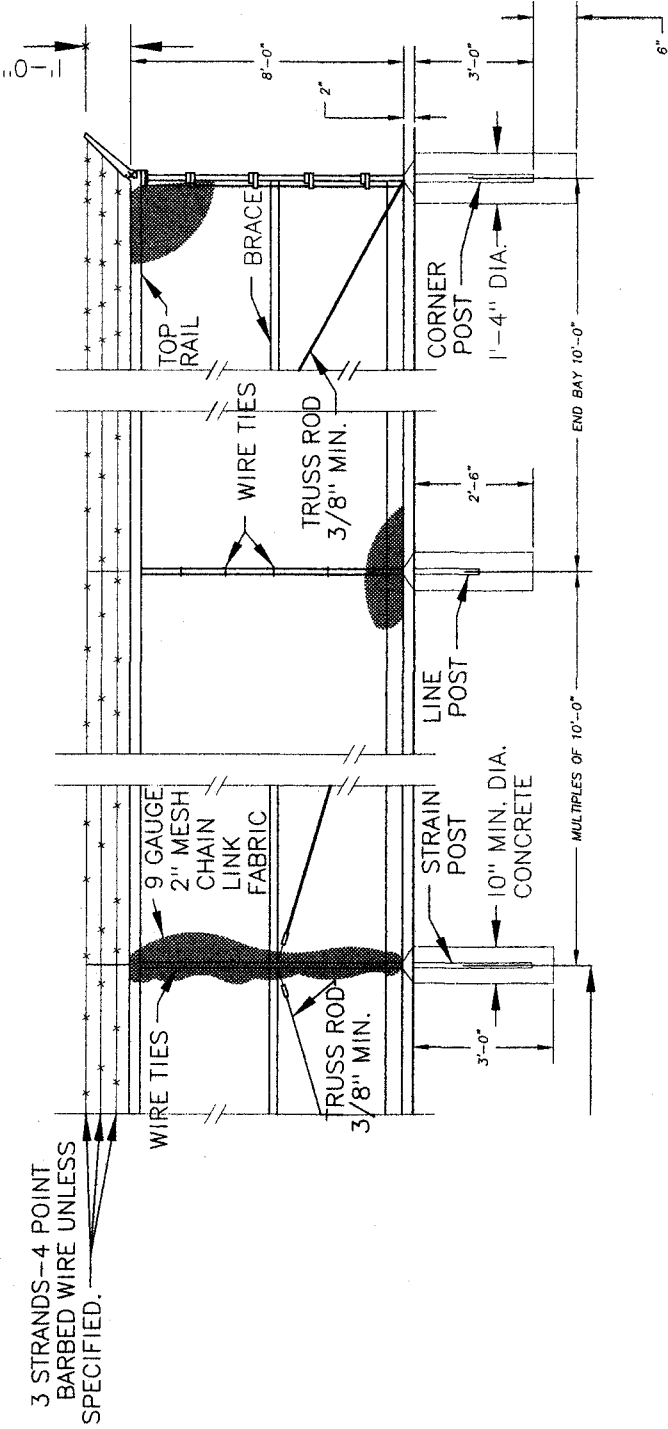
SHEET 6
5 OF 9



NO. 7 COILED SPRING
REINFORCED WIRE TIE
WITH 12 GAUGE WIRE
OR HOG RING
FASTENERS,
1'-6" C TO C.

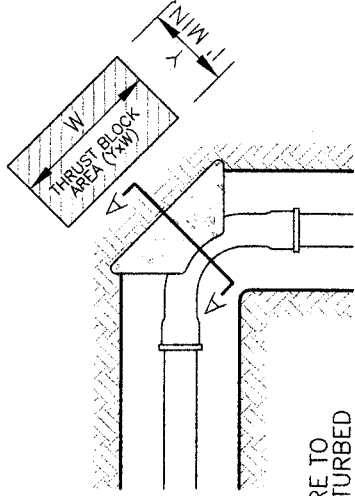
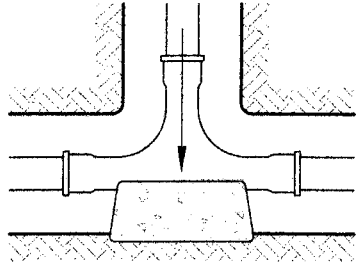
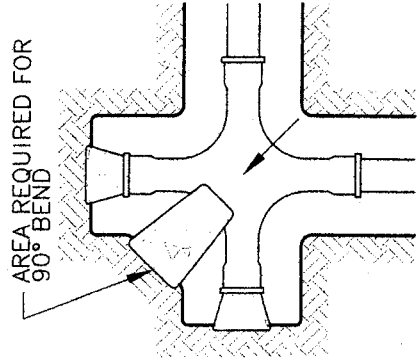
NOTES

1. ALL CONCRETE SHALL BE CLASS 'C' PER SECT. 725.
2. FITTINGS NOT SPECIFICALLY DETAILED SHALL BE APPROVED HEAVY DUTY DESIGN.
3. STRAIN POSTS SHALL BE SPACED AT 500' MAXIMUM INTERVALS.
4. BOTH CORNER AND STRAIN POST SHALL HAVE STRAIN PANELS.
5. ALL POSTS SHALL BE CAPPED.



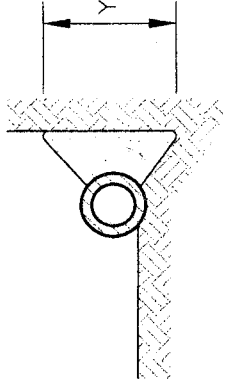
3 STRANDS-4 POINT
BARBED WIRE UNLESS
SPECIFIED.

MEMBER	SIZE	WT. PER LF.
1. CORNER POST	2 1/2" I.D. STD. PIPE SCHEDULE 40	5.79
2. LINE POST	1 1/2" I.D. STD. PIPE SCHEDULE 40	2.72
3. STRAIN POST	2 1/2" I.D. STD. PIPE SCHEDULE 40	5.79
4. BRACE	1 1/4" I.D. STD. PIPE SCHEDULE 40	2.27
5. STRETCH BAR	1/4" X 3/4" FLAT	
6. GATE POST	3 1/2" I.D. STD. PIPE SCHEDULE 40	9.11
7. TOP RAIL	1 1/4" I.D. STD. PIPE SCHEDULE 40	2.27



NOTE: THRUST BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND. CONCRETE TO BE CLASS C, SECT. 725.

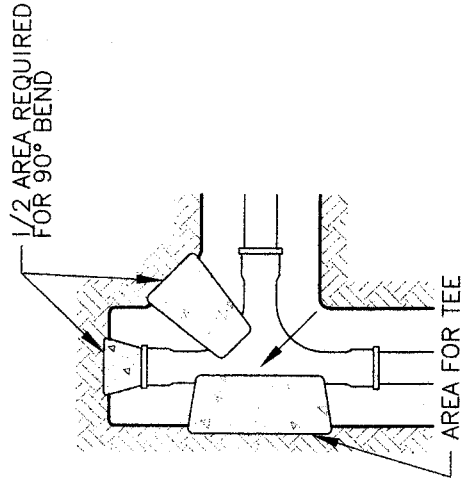
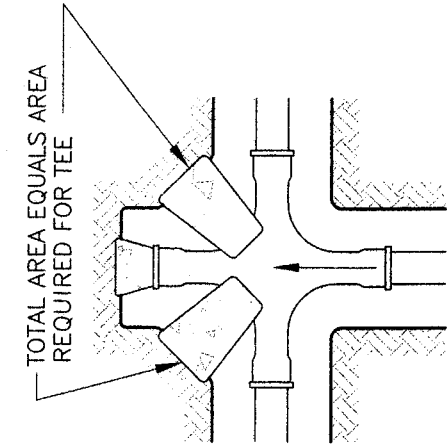
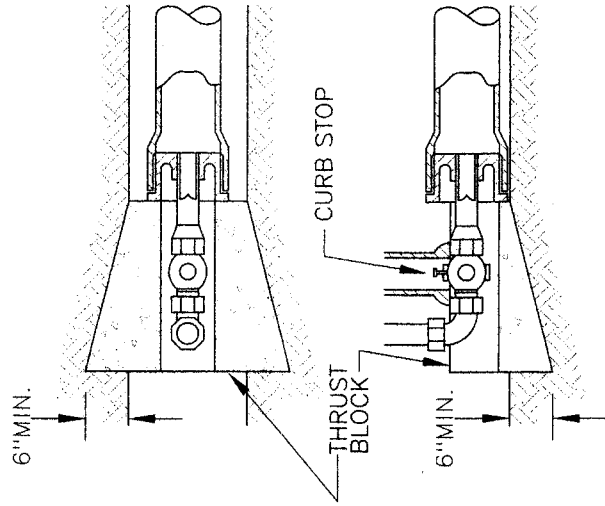
SECTION A-A



MINIMUM THRUST BLOCK AREA REQUIRED (YxW)		
PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° & 22 1/2° BENDS
4" & LESS	3 SQ. FEET	3 SQ. FEET
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET
10"	9 SQ. FEET	5 SQ. FEET
12"	13 SQ. FEET	7 SQ. FEET
16"	23 SQ. FEET	12 SQ. FEET

NOTES:

1. TABLE IS BASED ON 3000LBS./SQ. FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPE LARGER THAN 18" SHALL BE CALCULATED FOR EACH PROJECT.
3. FORM ALL NON-BEARING VERTICAL SURFACES.



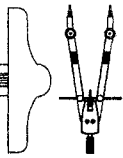
*AS AN ALTERNATE THRUST RESTRAINT, PIPE JOINTS MAY BE RESTRAINED FOR THE REQUIRED THRUST RESISTANCE DEVELOPMENT LENGTH USING SMITH BLAIR 982 OR SMITH BLAIR 981 PIPE JOINT RESTRAINTS OR APPROVED EQUALS. THE PROPOSED JOINT RESTRAINT AND THE REQUIRED THRUST RESISTANCE DEVELOPMENT LENGTH CALCULATIONS SHALL BE SUBMITTED TO THE UTILITY'S ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION OF THE WATER MAIN.

TYPICAL LOCATION OF THRUST BLOCKS

ELLSWORTH WELL #1

THRUST BLOCK DETAILS

SHEET 9 OF 9



NO.	DATE	DESCRIPTION
1	JULY 2005	PROJECT ELLSWORTH #1
2	JULY 2005	FILE NAME 3009B030
3	JULY 2005	SCALE
4	JULY 2005	CHECKED OS
5	JULY 2005	DRAWN TEAM
6	JULY 2005	DESIGNED GCH



Johnson Utilities Company - System #11-128

Well Identification Name System # 11-128	Well Identification Number	LOCATED WITHIN THE AREA OF:	ADEQ FILE NUMBER	ARSENIC LEVEL MG/L	POE
Production:					
J.R. Well No. 4 (untreated)	55-558445	Johnson	980006	0.003	#1
J.R. Well No. 4 (Treated with R.O. Unit)	55-558445	Johnson	980006		
J.R. Well #4 plus #5 (blended)	55-559843	Johnson	980006	0.005	#1
J.R. Well #4 plus #5 (blended & treated)	Misc.	Johnson	980006	0.005	#1
Edwards Road Well No. 2 (untreated)	55-586189	Johnson	2001037	0.002	#1
Oasis Well No. 1 (untreated)	55-582085	Oasis	20010611	0.022	#2
Oasis Well No. 3 (untreated)	55-582087	Oasis	20010611	0.003	#2
Oasis Well No. 2 (untreated)	55-582088	Oasis	20010611	0.008	#2
Skyline (untreated)	55-621462	Skyline	20020539	0.003	#3
Circle Cross Well #1 (untreated)	55-599026	Circle Cross	20020489	0.002	#4
Morning Sun Farms	55-201429	Morning Sun	20050258	0.004	#6
San Tan Heights #2	55-598836	San Tan Hts.	20050161	0.004	#5

EXHIBIT 4

Revised: 7/13/2005

Table "B"

LEGEND

Technical Services, Inc.

www.legend-group.com

17631 N. 25th Avenue • Phoenix, AZ 85023

P (602) 324-6100 • F (602) 324-6101

4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85706

P (520) 327-1234 • F (520) 327-0518

ADHS#0004

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek AZ, 85242

Project: Drinking Water Analysis
Project Number: Monitoring Wells
Project Manager: Gary Larsen

Reported:
03/15/05 10:24

OASIS WELLS

Johnson Utilities (JR Well #3) (5021229-01) Drinking Water (Grab) Sampled: 02/23/05 12:30 Received: 02/24/05 12:45

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	----	-------	----------	-------	----------	----------	--------	-------

Total Metals

Arsenic 0.023 0.002 mg/L 1 B503084 03/03/05 03/03/05 EPA 200.9

Johnson Utilities (JR Well #2) (5021229-02) Drinking Water (Grab) Sampled: 02/23/05 13:21 Received: 02/24/05 12:45

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	----	-------	----------	-------	----------	----------	--------	-------

Total Metals

Arsenic 0.008 0.002 mg/L 1 B502699 02/25/05 03/01/05 EPA 200.9

Johnson Utilities (Oasis Well #2) (5021229-03) Drinking Water (Grab) Sampled: 02/23/05 14:00 Received: 02/24/05 12:45

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	----	-------	----------	-------	----------	----------	--------	-------

Total Metals

Arsenic 0.003 0.002 mg/L 1 B502699 02/25/05 03/01/05 EPA 200.9

Johnson Utilities (JR Well #7) (5021229-04) Drinking Water (Grab) Sampled: 02/23/05 14:13 Received: 02/24/05 12:45

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	----	-------	----------	-------	----------	----------	--------	-------

Total Metals

Arsenic <0.002 0.002 mg/L 1 B503084 03/03/05 03/03/05 EPA 200.9

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.
QA/QC Criteria: All analyses met method requirements unless otherwise qualified.
Comments: There were no problems encountered during the processing of the samples, unless otherwise noted.

Notes and Definitions

Legend Technical Services of Arizona, Inc.

Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Johnson Utilities Co., LLC%Drinking Water
968 E. Hunt Hwy
Queen Creek AZ, 85242

Project: New Source
Project Number: [none]
Project Manager: Gary Larsen

Reported:
04/01/05 12:56

MORNING SUN FARMS

Well #1 (5030148-01) Drinking Water (Grab) Sampled: 03/02/05 11:30 Received: 03/02/05 13:35

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Radiation Safety Engineering #AZ0462

Calculation

Combined Radium	<0.4		pCi/L	1	NA	03/14/05	03/14/05	Calculation	
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EPA 600/00-02

Gross Alpha Activity	7.7 +/- 1.5		pCi/L	1	NA	03/09/05	03/09/05	EPA 600/00-02	
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EPA 903.1

Radium 226 Activity	<0.4		pCi/L	1	NA	03/14/05	03/14/05	EPA 903.1	
---------------------	------	--	-------	---	----	----------	----------	-----------	--

EPA 904.0

Radium 228 Activity	<0.4		pCi/L	1	NA	03/14/05	03/14/05	EPA 904.0	
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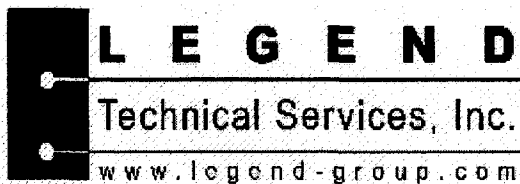
Microbiology

Total Coliforms	Absent		P/A	1	B503115	03/02/05	03/02/05	SM 9223B	
-----------------	--------	--	-----	---	---------	----------	----------	----------	--

E. coli	Absent		P/A	1	B503115	03/02/05	03/02/05	SM 9223B	
---------	--------	--	-----	---	---------	----------	----------	----------	--

Total Metals

Antimony	<0.004	0.004	mg/L	1	B503146	03/04/05	03/14/05	EPA 200.9	
Arsenic	0.004	0.002	mg/L	1	B503146	03/04/05	03/07/05	EPA 200.9	
Barium	0.20	0.01	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Beryllium	<0.002	0.002	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Cadmium	<0.0002	0.0002	mg/L	1	B503146	03/04/05	03/07/05	EPA 200.9	
Calcium Hardness	342	5	mg/L	2	[CALC]	03/04/05	03/09/05	SM 2340B	
Calcium	137	2	mg/L	2	B503145	03/04/05	03/09/05	EPA 200.7	
Chromium	<0.005	0.005	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Copper	<0.01	0.01	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Lead	0.004	0.002	mg/L	1	B503146	03/04/05	03/07/05	EPA 200.9	
Magnesium	26	1	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Mercury	<0.0002	0.0002	mg/L	1	B503257	03/09/05	03/09/05	EPA 245.1	
Nickel	<0.02	0.02	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Selenium	0.002	0.002	mg/L	1	B503146	03/04/05	03/09/05	EPA 200.9M2	
Sodium	159	2	mg/L	2	B503145	03/04/05	03/09/05	EPA 200.7	
Thallium	<0.001	0.001	mg/L	1	B503146	03/04/05	03/08/05	EPA 200.9	



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4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85706
P (520) 327-1234 • F (520) 327-0518

12 July 2005

Gary Larsen
Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

RE: Drinking Water Analysis - **SAN TAN HEIGHTS - WELL #2**
WELL # 55-598836
Legend ID: 5070388

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 07/11/05 12:10.

The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

DRAFT REPORT
DATA SUBJECT TO CHANGE

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

Project: Drinking Water Analysis
Project Number: 11-128
Project Manager: Gary Larsen

Reported:
07/12/05 16:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
DRAFT: Santan Well #2	5070388-01	Drinking Water	Grab	07/11/05 08:10	07/11/05 12:10

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.
QA/QC Criteria: All analyses met method requirements unless otherwise qualified.
Comments: There were no problems encountered during the processing of the samples, unless otherwise noted.

DRAFT REPORT

Certifications: AZ #0004 MN #004-999-387 AIHA #102982

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

Project: Drinking Water Analysis
Project Number: 11-128
Project Manager: Gary Larsen

Reported:
07/12/05 16:18

DRAFT: Santan Well #2 (5070388-01) Drinking Water (Grab) Sampled: 07/11/05 08:10 Received: 07/11/05 12:10

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DRAFT: Total Metals									
Arsenic	0.004	0.002	mg/L	1	B507271	07/12/05	07/12/05	EPA 200.9	

DRAFT REPORT

Certifications: AZ #0004 MN #004-999-387 AIHA #102982

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

Project: Drinking Water Analysis
Project Number: 11-128
Project Manager: Gary Larsen

Reported:
07/12/05 16:18

DRAFT: Total Metals - Quality Control
Legend Technical Services of Arizona, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
Batch B507271 - EPA 200.9								
Blank (B507271-BLK1)			<i>Prepared & Analyzed: 07/12/05</i>					
Arsenic	<0.002	0.002	mg/L					
LCS (B507271-BS1)			<i>Prepared & Analyzed: 07/12/05</i>					
Arsenic	<0.002	0.002	mg/L	0.0200		85-115		
Matrix Spike (B507271-MS1)			Source: 5070388-01	<i>Prepared & Analyzed: 07/12/05</i>				
Arsenic	<0.002	0.002	mg/L	0.0200	0.004	NR	70-130	
Matrix Spike Dup (B507271-MSD1)			Source: 5070388-01	<i>Prepared & Analyzed: 07/12/05</i>				
Arsenic	<0.002	0.002	mg/L	0.0200	0.004	NR	70-130	25

DRAFT REPORT

Certifications: AZ #0004 MN #004-999-387 AIHA #102982

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

Project: Drinking Water Analysis
Project Number: 11-128
Project Manager: Gary Larsen

Reported:
07/12/05 16:18

Notes and Definitions

BLK Method Blank
LCS/Dup Laboratory Control Sample/Laboratory Fortified Blank/Duplicate
MS/Dup Matrix Spike/Duplicate
Dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

DRAFT REPORT

Certifications: AZ #0004 MN #004--999-387 AIHA #102982

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

From: Aide Marin [amarin@cableaz.com]
Sent: Wednesday, April 06, 2005 10:40 AM
To: Brian Tompsett
Subject: Arsenic for JU Wells

Aquatic Consulting & Legend Technical Testing Laboratory Reports for Wells

Source	Date		Date	
Oasis POE001	9/14/2004		6/16/2003	
Skyline POE001	9/14/2004		8/20/2003	
Johnson Ranch POE001	8/11/2004		6/18/1997	
Sun Valley 5 POE001	8/24/2004		6/5/2004	
Circle Cross POE001	8/31/2004		11/5/2003	
Wildhorse POE001	9/14/2004		3/31/2004	

Johnson Ranch Well # 2	2/23/2005	
Johnson Ranch Well # 3	2/23/2005	
Johnson Ranch Well # 4	1/26/2005	
Johnson Ranch Well # 5	1/26/2005	
Johnson Ranch Well # 7	2/23/2005	
Oasis Well # 2	2/23/2005	
Oasis Well # 3	1/26/2005	
Rickey # 1	1/26/2005	

AUG 0 1 2005

A-7

ARIZONA DEPARTMENT OF WATER RESOURCES

500 North Third Street, Phoenix, Arizona 85004

Telephone 602 417-2440

Fax 602 417-2415



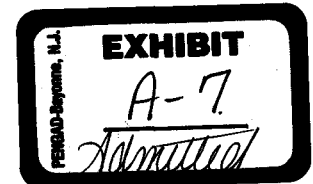
Janet Napolitano
Governor

Herbert R. Guenther
Director

July 26, 2005

CERTIFIED MAIL NO.7004 2510 0007 2283 0832

Johnson Utilities
Anthem At Merrill Ranch-Pinal AMA
Attention: Brian Tompsett
5230 E. Shea Blvd #200
Scottsdale, AZ 85254



**RE: Approval of Service Area Right No 56-001538.0000
Johnson Utilities**

Dear Small Municipal Provider:

The Department of Water Resources has reviewed all the information pertaining to the operation of your water service and has granted a new service area right to Johnson Utilities. Your service area right number is 56-001538.0000.

Any person withdrawing groundwater from a non-exempt well is required to use a water measuring device to record rates of withdrawal, in order to provide or allow the computation of an annual volume of pumpage. The total volume of pumpage shall be reported on an Annual Water Withdrawal and Use Report (Annual Report). The Annual Report for withdrawals in calendar year 2005 will be due on March 31, 2006. Note that the Annual Report form will be mailed to you at the above-referenced address in January 2006.

This is also an Official Notice of the conservation requirements, distribution system requirements, and monitoring and reporting requirements for small providers. These requirements were established in the Third Management Plan (TMP) and became effective January 1, 2002.

As a municipal provider serving 250 acre-feet or less of water for non-irrigation use during a calendar year, you are a small municipal provider. Upon receipt of this notice, and continuing until the first compliance date for any substitute requirements in the Fourth Management Plan, you are required to comply with the conservation requirements for small municipal providers in section 5-111 of the TMP; the individual user requirements in section 5-112 of the TMP; the distribution system conservation requirements for small municipal providers in section 5-113 of the TMP; and the applicable monitoring and reporting requirements in section 5-114 of the TMP. Those requirements are set forth in the enclosed *Attachment TMP - Small Municipal Providers*.

You should be aware that if you begin serving more than 250 acre-feet of water per year for non-irrigation use during the third management period (2000 to 2010), you would become a large municipal provider. In that event, you will be required to comply with the conservation requirements for new large municipal providers and the distribution system requirements for large municipal providers beginning with the second full calendar year after you are given written notice of those requirements by the director.

Administrative Relief from Conservation Requirements

The Department has found the conservation requirements in the TMP to be equitable for most water users. However, there are two separate methods for seeking administrative relief from the conservation requirements if you believe you will be unable to comply with the requirements. You may request a VARIANCE or an ADMINISTRATIVE REVIEW.

1. VARIANCE

A person who requires additional time to comply with a conservation requirement may apply to the director for a VARIANCE from the requirement pursuant to A.R.S. § 45-574. The director may grant a variance for up to five years upon a showing of "compelling economic circumstances." An application for a variance must be filed within 90 days after the date you receive this notice.

2. ADMINISTRATIVE REVIEW

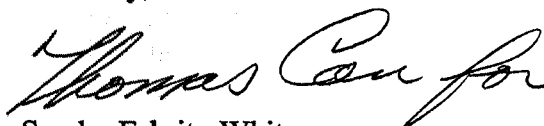
If you feel that a conservation requirement is unreasonable as applied to you, you may apply for an ADMINISTRATIVE REVIEW of the requirement pursuant to A.R.S. § 45-575(A). An application for administrative review under A.R.S. § 45-575(A) must be filed within 90 days after the date you receive this notice.

An administrative review may also be applied for at any time during the third management period if extraordinary circumstances not in existence as of the date of this notice make it unreasonable to require your compliance with a conservation requirement. If these circumstances should arise during the third management period, please contact the Tucson Active Management Area (AMA) for information and application procedures.

The Department has issued this service area right pursuant to A.R.S. § 45-492 of the Groundwater Code. The legal nature of the water withdrawn from your wells may be the subject of court action in the future as part of a determination of surface water rights in your area. If there are court proceedings that could affect your wells, you will be notified and be given the opportunity to participate.

If you have any questions regarding your conservation requirements, or if you need an application form and information on the Variance or Administrative Review procedures, please contact the Pinal Active Management Area office at 520-8360-4857.

Sincerely,



Sandra Fabritz-Whitney
Assistant Director

Enclosure

cc: Pinal AMA office

Attachment TMP – Small Municipal Providers

5-111. Conservation Requirements for Small Municipal Providers

By January 1, 2002 or upon commencement of service of water, whichever is later, and until the first compliance date for any substitute requirements in the Fourth Management Plan, a small municipal provider shall adopt and implement a program to achieve the following goals:

1. Minimize waste of all water supplies.
2. Maximize efficiency in outdoor watering.
3. Encourage reuse of water supplies.
4. Reduce its total GPCD usage.

5-112. Individual User Requirements for Municipal Providers and Individual Users

A. Individual User Requirements

Beginning January 1, 2002, or upon commencement of service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, the municipal provider or individual user responsible for compliance with the individual user requirements under subsection B of this section shall comply with the following, as applicable:

1. The municipal provider or individual user shall serve water to, or use water within, a turf-related facility only in accordance with sections 6-302 through 6-305 of the Industrial Chapter of the Third Management Plan, and shall comply with the monitoring and reporting requirements set forth in section 6-203 of the Industrial Chapter, as though the individual user were an industrial user. The person responsible for compliance shall also comply with the requirements contained in section 6-202 of the Industrial Chapter, if applicable, as though the individual user were an industrial user.
2. The municipal provider or individual user shall serve water to, or use water within, a large-scale cooling facility only if the person using water at the facility complies with all applicable conservation requirements contained in sections 6-602 and 6-603 of the Industrial Chapter of the Third Management Plan as though the person was an industrial user. The person responsible for compliance shall also comply with the applicable monitoring and reporting requirements contained in section 6-203 and the conservation requirements contained in section 6-202 of the Industrial Chapter, if applicable, as though the individual user were an industrial user.
3. The municipal provider or individual user shall serve or use groundwater for the purpose of watering landscaping plants planted on or after January 1, 1987 within any publicly owned right-of-way of a highway, street, road, sidewalk, curb or shoulder that is used for travel in any ordinary mode, including pedestrian travel, only if the plants are listed in Appendix 5I. The director may waive this requirement upon request from the municipal provider or individual user if a waiver of this requirement is in the public interest. This

requirement does not apply to any portion of a residential lot that extends into a publicly owned right-of-way.

4. The municipal provider or individual user shall not serve or use groundwater for the purpose of maintaining a water feature, including fountains, waterfalls, ponds, water courses, and other artificial water structures installed after January 1, 2002 within any publicly owned right-of-way of a highway, street, road, sidewalk, curb or shoulder that is used for travel in any ordinary mode, including pedestrian travel. The director may waive this requirement upon request from the municipal provider or individual user if a waiver of this requirement is in the public interest. This requirement does not apply to any portion of a residential lot that extends into a publicly owned right-of-way.

B. Responsibility for Compliance with Individual User Requirements

1. A municipal provider shall be responsible for complying with an individual user requirement set forth in subsection A of this section for an existing individual user unless one of the following applies:
 - a. The provider identified the existing individual user to the director on a form provided by the Department and received by the director no later than 90 days before the adoption of the Third Management Plan.
 - b. The director gave written notice of the individual user requirement to the individual user within 30 days after the adoption of the Third Management Plan.
2. An existing individual user that has been given written notice of an individual user requirement by the director shall be responsible for complying with the individual user requirement beginning on the date specified in the notice.
3. A municipal provider shall be responsible for complying with an individual user requirement set forth in subsection A of this section for a new individual user unless one of the following applies:
 - a. The municipal provider identifies the new individual user to the director on a form provided by the Department. If the provider identifies the new individual user to the director within 90 days after the provider begins serving water to the new individual user, the municipal provider shall not be responsible for complying with the individual user requirement at any time. If the provider identifies the new individual user to the director more than 90 days after the provider begins serving water to the new individual user, the provider shall be responsible for complying with the individual user requirement beginning on the date the new individual user first receives water from the provider until the end of the calendar year in which the provider identifies the individual user to the director.
 - b. The director has given written notice of the individual user requirement to the individual user and the individual user is responsible for complying with the requirement.

4. A new individual user that has been given written notice of an individual user requirement by the director shall be responsible for complying with the individual user requirement beginning on the date specified in the notice.

C. Notification of New Individual User by Municipal Provider

Beginning January 1, 2002 and continuing thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, a municipal provider shall notify a new individual user in writing of its individual user requirements as set forth in subsection A of this section before commencement of service of water to the individual user.

5-113. Conservation Requirements for Municipal Distribution Systems

For the calendar year 2002 or the calendar year in which the provider commences service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan:

1. A large municipal provider shall not operate a municipal distribution system in a manner such that lost and unaccounted for water exceeds 10 percent of the total quantity of water from any source, except direct use effluent, withdrawn, diverted, or received by the large municipal provider for non-irrigation use on an annual or three-year average basis.
2. A small municipal provider shall not operate its municipal distribution system in a manner such that lost and unaccounted for water exceeds 15 percent of the total quantity of water from any source, except direct use effluent, withdrawn, diverted, or received by the small municipal provider for non-irrigation use on an annual or three-year average basis.

5-114. Monitoring and Reporting Requirements for Municipal Providers and Individual Users

For the calendar year 2002 or for the calendar year in which the municipal provider commences service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan:

1. A large municipal provider shall separately measure and report in its annual reports required by A.R.S. §§ 45-468 and 45-632 the total quantity of water from any source, including effluent, delivered each month for: (a) irrigation uses; (b) residential uses by category, including single family and multifamily; (c) non-residential uses by category, including commercial uses, industrial uses, government uses, construction uses, and other uses; and (d) turf-related facility use.
2. A municipal provider shall report the following in its annual report required by A.R.S. § 45-632:
 - a. The total quantity of water from any source, disaggregated by each source, withdrawn, diverted, or received by the provider for non-irrigation use during the reporting year, as separately measured with a measuring device in accordance with paragraph 6 of this subsection.

- b. The total quantity of water from any source, including effluent, withdrawn, diverted, or received by the provider for irrigation use during the reporting year.
 - c. The total quantity of effluent, disaggregated by direct use effluent, effluent recovered within the area of impact, and effluent recovered outside the area of impact, served by the provider during the reporting year for non-irrigation use.
 - d. The number of single family housing units added to the providers service area from July 1 of the previous calendar year to July 1 of the reporting year.
 - e. The number of multifamily housing units added to the provider's service area from July 1 of the previous calendar year to July 1 of the reporting year.
 - f. The total number of single family housing units and multifamily housing units served by the provider as of July 1, 2000.
 - g. The number of single family housing units and the number of multifamily housing units added to the provider's service area between July 1, 2000 and July 1 of the reporting year.
 - h. The provider's total quantity of lost and unaccounted for water during the calendar year.
 - i. The percentage of the total quantity of water from any source, except effluent, withdrawn, diverted, or received by the provider during the calendar year that is lost and unaccounted for water.
3. In addition to the information required by paragraphs 1 and 2 of this section, a large municipal provider regulated under the NPCCP described in section 5-104 shall include the following in its annual report required by A.R.S. § 45-632:
- a. The information listed in the monitoring and reporting requirement sections of those RCMs set forth in Appendix 5H.1-4 that the provider agrees in writing to implement pursuant to section 5-104, subsection E, paragraph 1.
 - b. If the provider applied for the NPCCP under section 5-104, subsection A, paragraph 4, the information required to be submitted by the provider under the Assured Water Supply Rules adopted by the director pursuant to A.R.S. § 45-576.
 - c. Any other information required by the director in order to determine the provider's compliance with the NPCCP.
4. In addition to the information required by paragraphs 1 and 2 of this section, a large municipal provider regulated under the ACP described in section 5-105 shall include in its annual report required by A.R.S. § 45-632:
- a. A status report describing progress in implementing the provider's programs proposed in its application, specifically including the provider's proposed conservation plan.

- b. The information listed in the monitoring and reporting requirement sections of those RCMs set forth in Appendix 5F.2 and 5F.4 that the provider agrees in writing to implement pursuant to section 5-105, subsection C, paragraph 3.
- 5. A large municipal provider shall meter water deliveries to all service connections on its municipal distribution system, except connections to fire services, dwelling units in individual multifamily units, mobile homes in a mobile home park with a master meter, and construction users.
- 6. A municipal provider shall make all water use measurements using measuring devices in accordance with the Department's measuring device rules, R12-15-901, et seq., Arizona Administrative Code.
- 7. An individual user shall meet the monitoring and reporting requirements prescribed in the Industrial Chapter, if applicable, as though the individual user were an industrial user.

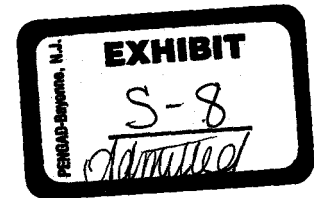
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BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

2005 JUL 13 P 1:45

AZ CORP COMMISSION
DOCUMENT CONTROL



IN THE MATTER OF THE APPLICATION
OF JOHNSON UTILITIES COMPANY FOR
AN EXTENSION OF ITS EXISTING
CERTIFICATE OF CONVENIENCE AND
NECESSITY FOR WATER AND
WASTEWATER SERVICE.

DOCKET NO. WS-02987A-04-0288

STAFF'S NOTICE OF FILING
DIRECT TESTIMONY

The Utilities Division ("Staff") of the Arizona Corporation Commission hereby files the
Direct Testimony of Staff John A. Chelus in the above-referenced matter.

RESPECTFULLY SUBMITTED this 13th day of July, 2005.

UTILITIES DIVISION

By:

Timothy J. Sabo
Attorney, Legal Division
Arizona Corporation Commission

ORIGINAL and 13 copies delivered
this 13th day of July, 2005, to:

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

COPIES hand-delivered this
13th day of July, 2005 to:

Marc Stern, Administrative Law Judge
Hearing Division
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

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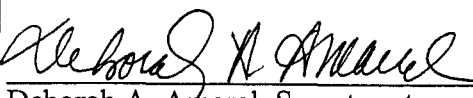
LEGAL DIV.
ARIZ CORPORATION COMMISSION

1 Steve Olea, Assistant Director
Utilities Division
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3 Phoenix, Arizona 85007

4 COPIES telecopied and mailed
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15 Timothy J. Sabo
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DIRECT TESTIMONY

OF

JOHN A. CHELUS

UTILITIES ENGINEER

UTILITIES DIVISION

JULY 13, 2005

TABLE OF CONTENTS

PAGE

Executive Summary	i
I. Introduction	1
II. Purpose of Testimony	2
III. Discussion of Process for Analysis of Well and Storage Data	3
IV. Conclusions	4

**SUMMARY OF DIRECT TESTIMONY
OF JOHN A. CHELUS
JOHNSON UTILITIES COMPANY, L.L.C.
DOCKET NO. WS-02987A-04-0288**

CONCLUSIONS

1. Based on the demand requirements used in Staff's April 13, 2005 Amendment to the Staff Report, the updated customer count provided by the Company on July 1, 2005 and assuming an average growth rate of 500 customers per month, Staff estimates there will be enough well capacity to provide for an annual peak day demand of 521 gallons per/day/service through December 2005 and an average daily demand during the peak month of 417 gallons/day/service through June 2006 when using the 5,082 gallon per minute capacity provided by Johnson Utilities.
2. In addition, the Company has previously submitted copies of applications for the Crestfield Wells No. 1 and 2 which were submitted to ADEQ on May 26, 2005. Each well is expected to produce 1,000 gallons per minute. Therefore, Staff concludes that the existing system has adequate production and storage capacity.

1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is John A. Chelus. My business address is 1200 West Washington Street,
4 Phoenix, Arizona 85007.

5 **Q. By whom and in what position are you employed?**

6 A. I am employed by the Arizona Corporation Commission ("Commission") as a Utilities
7 Engineer - Water/Wastewater for the Utilities Division

8 **Q. How long have you been employed by the Commission?**

9 A. I have been employed by the Commission since September 1990.

10 **Q. What are your responsibilities as a Utilities Engineer - Water/Wastewater?**

11 A. I inspect, investigate, and evaluate water and wastewater systems; obtain data, prepare
12 investigative reports; suggest corrective action and provide technical recommendations on water
13 and wastewater system deficiencies; and provide written and oral testimony on rate and other
14 cases before the Commission.

15 **Q. How many companies have you analyzed for the Utilities Division?**

16 A. I have analyzed approximately 150 companies in various capacities for the Utilities
17 Division.

18 **Q. Have you previously testified before this Commission?**

19 A. Yes, I have.

20 **Q. What is your educational background?**

21 A. I graduated from the Rochester Institute of Technology in 1976 with a Bachelors Degree in
22 Civil Engineering and from Oklahoma State University in 1978 with a Masters Degree in
23 Environmental Engineering.

24 **Q. Briefly describe your pertinent work experience.**

25 A. I worked for the Dallas Water Utilities as an engineer in the Wastewater Division, and then
26 in the Engineering Design Division from 1978 to 1981. I moved to Grand Junction, Colorado and
27 worked for Multi Mineral Corporation as a research engineer until 1982. After this I worked for
28 Westwater Engineering Consultants as a design engineer. In 1983, I was employed by Sauter

1 Construction as a construction engineer for the construction of the Ute Water Treatment facilities
2 in Palisade, Colorado. In 1984 and 1985, I was employed by the City of Grand Junction as a
3 Grade IV wastewater operator at their 12 million gallon per day activated sludge treatment
4 facility. In 1986, I moved to Phoenix and began working for the Arizona Department of
5 Environmental Quality ("ADEQ"), Office of Water Quality, as a design review engineer, and then
6 as a field engineer. I stayed at ADEQ until transferring to the Commission in 1990.

7 **II. PURPOSE OF TESTIMONY**

8 **Q. What was your assignment in this proceeding?**

9 A. My assignment was to provide engineering evaluation of the Johnson Utilities Company
10 production and storage capacity for Public Water System ("PWS") No. 11-128. Lyndon R.
11 Hammon, who had assisted in the preparation of the original Staff report, and who had prepared
12 the amendment to Staff report and who testified in the hearing for this docket has since retired
13 from state service. I am familiar with the case and therefore will complete the assignment.

14 **Q. What is the purpose of your testimony in this proceeding?**

15 A. To present the findings of Staff's engineering evaluations of the well production and
16 storage data docketed by Johnson Utilities on July 1, 2005 for the Johnson Utilities PWS No. 11-
17 128.

18 **III. DISCUSSION OF PROCESS FOR ANALYSIS OF WELL AND STORAGE DATA**

19 **Q. Please provide a summary of the events that led to Staff's conclusion about the**
20 **adequacy of the production and storage capacity for the Johnson Utilities system.**

21 A. 1. On June 27, 2005, pursuant to the June 21, 2005 Procedural Order, Staff filed its
22 response indicating that it was of the opinion the Company had inadequate water production
23 capacity to serve the existing and requested expansion area even with the Morning Sun Farm Well
24 No. 1 in service.

25 2. On June 30, 2005, the Company met with Staff to discuss the well capacity issue.

26 3. On July 1, 2005, the applicant filed a response to Staff's June 27, 2005 response.

27 This July 1st response provided additional information about new wells which have recently been
28

placed in service and adjustments to flows to existing wells which were brought about by pump replacements and blending. In particular, the San Tan Heights Well No. 2 received an Approval of Construction from ADEQ on April 18, 2005, for 700 gallons per minute and the Morning Sun Farm Well No. 1 received an Approval of Construction on June 3, 2005, for 1,100 gallons per minute.

Q. What did Johnson Utilities report in its July 1, 2005 response for updated well production and customer count on PWS No. 11-128?

A. The Company now reports that the total estimated well production that is currently online for the PWS No. 11-128 is 5,082 gallons per minute. The Company also reported having 10,833 customers at the end of May, 2005.

IV. CONCLUSIONS

Q. Is it Staff's opinion that Johnson Utilities now has enough well capacity to properly and adequately serve PWS No. 11-128?

A. Based on the demand requirements used in Staff's April 13, 2005 Amendment to the Staff Report, the updated customer count provided by the Company on July 1, 2005 and assuming an average growth rate of 500 customers per month, Staff estimates there will be enough well capacity to provide for an annual peak day demand of 521 gallons per/day/service through December 2005 and an average daily demand during the peak month of 417 gallons/day/service through June 2006 when using the 5,082 gallon per minute capacity provided by Johnson Utilities. In addition, the Company has previously submitted copies of applications for the Crestfield Wells No. 1 and 2 which were submitted to ADEQ on May 26, 2005. Each well is expected to produce 1,000 gallons per minute.

Staff concludes that the existing system has adequate production and storage capacity.

Q. Does this conclude this portion of your testimony?

A. Yes.

...

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